
PAUL VIANT, ©GETTY IMAGES

# investments and actions

Adequate maintenance. System efficiency. Strategic expansion. This trio of themes forms the framework around which we've built the Transportation 2030 Plan. In the following pages, we put flesh on these bones, showing how they translate to investments in specific programs and projects. And, we share our ideas on how MTC together with the Bay Area public and decisionmakers at the local, state and federal levels can take these projects and programs to the next level by mining a new funding source or enacting a new law — or by eliminating an impediment to progress. These "Calls to Action" are captured in the shaded box at the end of each topic.

The fundamental spending choices underlying this chapter were made at the conclusion of the first phase of the Transportation 2030 Plan development process, in December 2003, when the Commission carved the 25-year funding pie into several broad slices and earmarked funding for a series of regionally significant investments that are highlighted here.

A comprehensive listing of transportation projects and programs included in the Transportation 2030 Plan is found in Appendix One. Additional project-level details of these investments are provided in the *Project Notebook,* a companion supplemental report to the Transportation 2030 Plan.

Topping the list of maintenance needs is the rehabilitation or replacement of worn-out transit vehicles and facilities as well as the upkeep of freeways and local roadways. Yet despite a sizable commitment of plan resources, the Bay Area still faces a whopping $17 billion maintenance and operating funding gap over the next 25 years.

The System Efficiency section of this investment chapter stands out for its innovative programs, creative application of intelligent transportation technologies and provocative policy recommendations. Falling into this category are efforts to squeeze more capacity out of the region's existing infrastructure; initiatives to broaden access to mobility for bicyclists, pedestrians, wheelchair users and low-income families; and strategies for protecting the region's open space and environment.

We show how the Transportation 2030 Plan directs $400 million to a variety of regional operations programs, including the TransLink® transit-fare smart card, the 511 Traveler Information System (which delivers real-time traffic information via the phone and Web), and the proven and popular Freeway Service Patrol and call box programs.

Just as we must preserve the Bay Area's transportation assets and take the fullest possible advantage of them, so too must we wisely invest our limited resources to expand the transportation system to accommodate new residents and new jobs. This chapter's section on Strategic Expansion identifies several exciting initiatives, including a call for establishing a network of high-occupancy/toll lanes, whereby solo drivers would help finance expansion of the region's carpool lanes by paying for the opportunity to use them.

## Adequate Maintenance



## System Efficiency



## Strategic Expansion

# adequate maintenance

## Potholes Ahead — More Local Road Dollars Needed

Local streets and roads are an integral part of the Bay Area's transportation network and represent a huge investment of public resources. One goal of MTC has been to work with cities and counties to identify and manage needed repairs to their local street and road networks. MTC advocates the adoption of preventive maintenance programs as a cost-effective approach to maintaining and extending the serviceability of these networks. Currently, deterioration of the Bay Area's roadways has created large unfunded repair backlogs in a majority of jurisdictions.

MTC is committed to funding and maintaining a Metropolitan Transportation System, or MTS, consisting of freeways and local routes deemed essential to regional mobility. The primary challenge for cities and counties is to adequately maintain their non-MTS streets and roads.

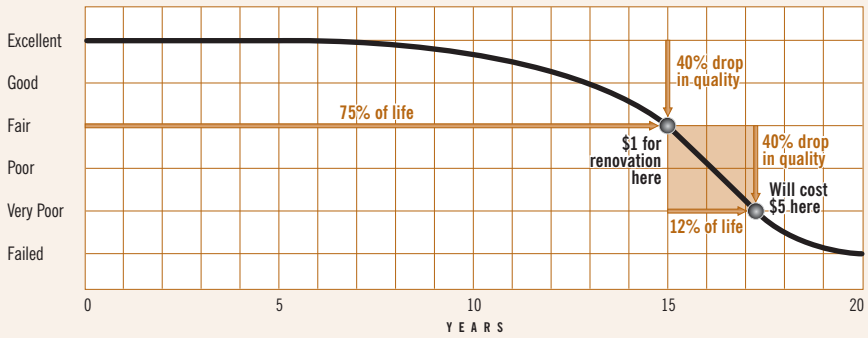
Local street and road needs are divided into two categories:

- **Pavement** includes rehabilitation or reconstruction of existing roads, plus preventive maintenance to extend pavement life
- **Non-pavement** includes related roadway maintenance of such items as storm drains, traffic lights, pedestrian walkways, retaining walls, storm damage, curb cuts for wheelchair access, etc.

Local road maintenance is funded from many sources, including: state gas taxes, county sales taxes, and other local sources such as city and county general funds, bonds and traffic fees.


GEORGE DRAPER

### Pavement Condition Over Time*

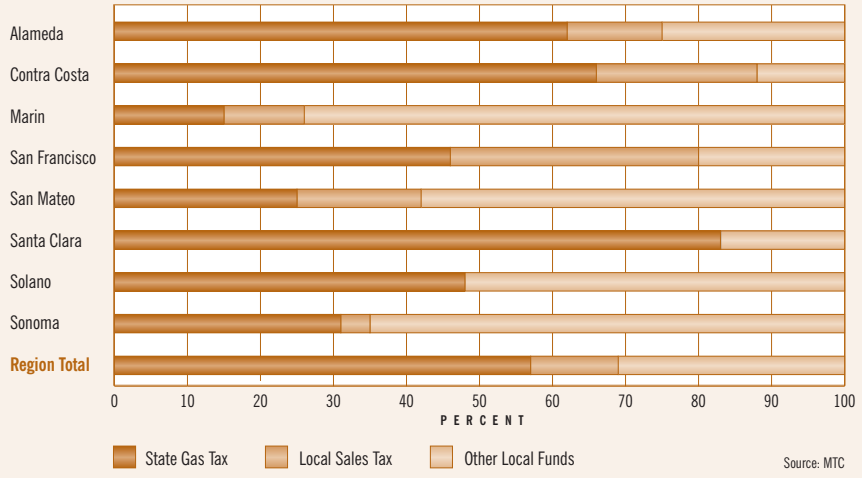



*Pavement wear varies depending on traffic, climate, pavement design, etc.

Source: MTC

### Bay Area Local Street and Road Funding by Source

Data is for years 2005–2029; data for Napa County is unavailable




Source: MTC

Proposition 42, approved by voters in March 2002, dedicates the state sales tax on gasoline to transportation, a portion of which is earmarked for local roads. Unfortunately, due to the state's fiscal crisis, the statute has been repeatedly suspended and the earmarked funds have not yet materialized.

## Transportation 2030 Challenges

- The 25-year pavement/non-pavement maintenance needs for the Bay Area total $16.7 billion. Including funds directed by this plan, projected expenditures over the same period are expected to be only about $10.6 billion (covering just 64 percent of the needs), resulting in $6.1 billion in unfunded needs.

- Experience shows that delayed maintenance leads to even costlier rehabilitation. As shown on the facing page, if it costs $1 to keep a section of roadway pavement in good condition through timely maintenance, it will cost $5 — five times as much — to restore the same roadway if it is allowed to deteriorate to the point where major rehabilitation or reconstruction is needed.

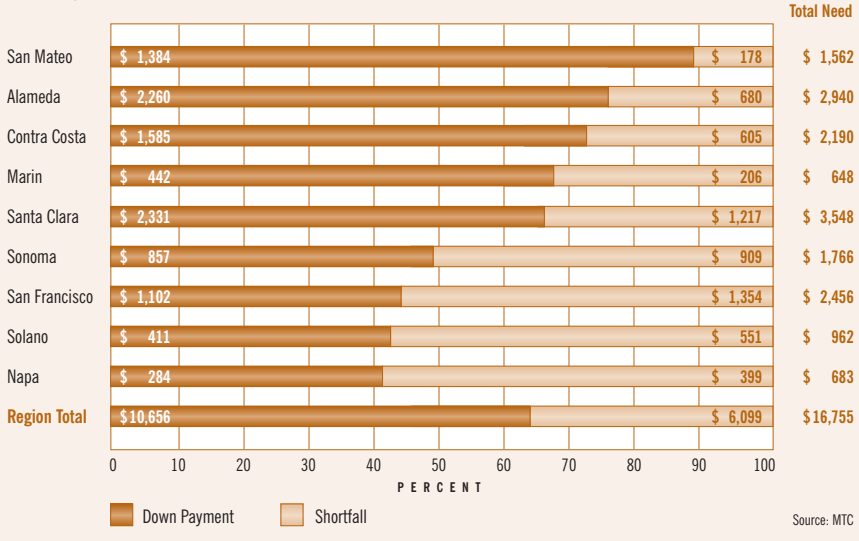
- The magnitude of the road shortfall suggests that maintenance will likely be deferred on some facilities, thus increasing overall costs.

## Transportation 2030 Decision

MTC must strike a balance when determining how much regional funding should go toward local streets and roads compared to other important investments. The Commission has committed $990 million in discretionary funds to close a projected funding gap for rehabilitation (pavement and non-pavement) of MTS streets and roads. This leaves $6.1 billion in non-MTS local streets and roads needs unfunded.

### Road Maintenance Expenditures by Bay Area County, Ranked by Relative Size of Down Payment

Data is for years 2005–2029; dollar amounts in millions




Source: MTC

# Calls to Action

### Strengthen Proposition 42

Approved by 69 percent of voters in 2002, Proposition 42 permanently dedicated gasoline sales tax revenue to transportation, including local roads. This measure is supposed to provide over $1 billion annually statewide, yet transportation projects have not seen a dime because the governor and Legislature have taken advantage of a provision that allows for its suspension. Proposition 42 should be strengthened so that it cannot be routinely suspended to pay for other needs.

### Condition Maintenance Funds

Traditionally, MTC has focused the region's limited maintenance funding on keeping the most heavily traveled local streets and roads in good repair, and the counties with the biggest maintenance funding gaps received the most funding. However, this approach inadvertently penalizes counties that do make a hefty investment in keeping their local road system healthy. To address this unintended result, MTC and its partners should come up with a distribution formula that rewards cities and counties that are putting more local resources into their roadway networks, and have made maximum use of efficiency measures.

### Devote More Local Sales Tax Revenues to Road Maintenance

Most Bay Area transportation sales taxes allocate 20 percent to 25 percent of revenues to the upkeep of local streets. Counties should increase this share to address projected maintenance shortfalls.

### Self-Help for Every County

Cities' and counties' continued reliance on their general funds to finance street rehabilitation is risky, particularly since the general funds are often tapped out by police, fire and other needs. Cities and counties need to look to the voters to approve user charges such as vehicle license fees and fuel taxes to pay for pothole repair.

# Keeping Trains and Buses Humming

Public transit plays a critical role in the Bay Area's transportation system. It provides mobility to people without access to cars, including those who are low-income, elderly or disabled, as well as school-aged children. During the congested commute hours, public transit provides an alternative to driving, which helps reduce the numbers of cars on the roads. As transit funding becomes increasingly scarce, the challenge is to find ways to sustain and maintain today's core transit system. The prudent expenditure of transit operating and capital replacement funds is necessary to balance operating and capital replacement costs with reduced revenues.

## Transportation 2030 Challenges

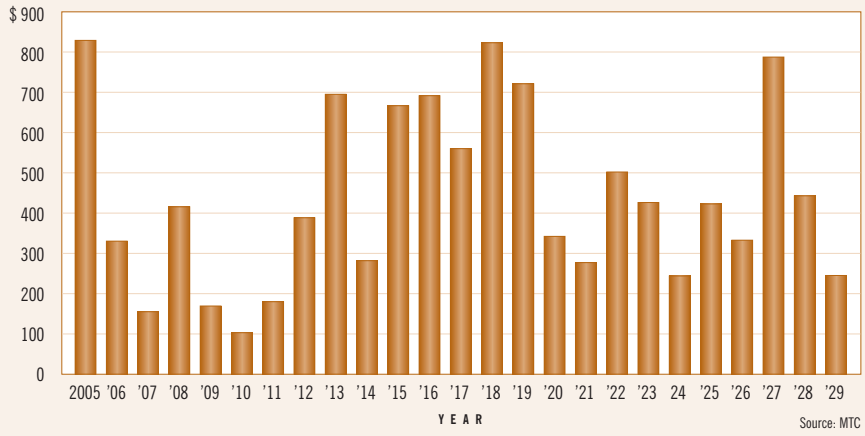
- Operating and capital replacement costs for Bay Area transit providers are projected to total $69.3 billion ($16.2 billion capital and $53.1 billion operating) over the next 25 years. Dedicated revenues over the same period (not including discretionary funding directed by MTC in this plan) are expected to be about $63.9 billion, resulting in $5.4 billion ($4.1 billion capital and $1.3 billion operating) in initial unfunded needs.

- The Commission has decided to give priority to a regional investment in vehicles and fixed-guideway replacement and rehabilitation before funding proposed service expansion.

- As with local streets and roads, delayed maintenance of the transit system leads to even costlier rehabilitation.

### Transit Capital Replacement Costs by Year

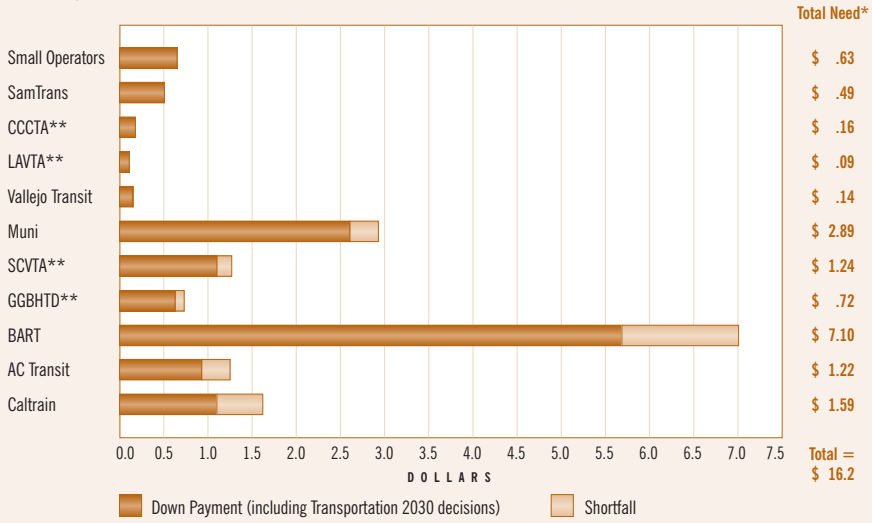
Data is for years 2005–2029; dollar amounts in millions




Source: MTC

### Transit Capital Replacement Costs by Operator

Data is for years 2005–2029; dollar amounts in billions




* Total transit capital replacement needs are estimated based on data available from each operator at the time of the analysis. Commission policy that directs regional discretionary funding to cover the shortfall may take into account differences in 25-year projected shortfalls and needs identified in the near-term.

** CCCTA = Central Contra Costa Transit Authority; LAVTA = Livermore-Amador Valley Transportation Authority; SCVTA = Santa Clara Valley Transportation Authority; GGBHTD = Golden Gate Bridge, Highway and Transportation District

Source: MTC

- BART has by far the largest transit capital replacement need ($7.1 billion) of any Bay Area transit operator, accounting for nearly 44 percent of the region's total transit capital replacement need over the next 25 years. Due to its high ridership and extensive track mileage, BART also attracts considerable capital replacement funds for the Bay Area under federal law. Even with a $5.7 billion down payment on BART's need (including funds directed by MTC in this plan), BART is facing a $1.4 billion capital replacement shortfall. This comprises 50 percent of the net transit

> AS TRANSIT FUNDING BECOMES INCREASINGLY SCARCE, THE CHALLENGE IS TO FIND WAYS TO SUSTAIN AND MAINTAIN TODAY'S CORE TRANSIT SYSTEM.

capital replacement shortfall, after action by MTC (see "Transportation 2030 Decision" below).

- Transit operating shortfalls will need to be managed through system efficiencies and revenue enhancements.
- Improved maintenance alone will be insufficient to meet the transit needs of a growing Bay Area. Increased service levels are needed to boost transit ridership and accommodate future population growth.

## Transportation 2030 Decision

The Commission earmarked $1.3 billion of Transportation 2030 revenues for transit capital expenses. This $1.3 billion, added to $12.2 billion already committed to that purpose, covers about 75 percent of the need, leaving an unfunded transit capital replacement cost for all operators of $2.8 billion.

# Calls to Action

### Condition Capital Replacement Funds

MTC commits funding for transit operating and capital purposes based on the transit operators' shortfall levels. This results in transit operators with the largest shortfalls receiving the highest levels of discretionary Transportation 2030 funding. MTC will work with the transit operators to find innovative and equitable ways to condition capital replacement funds, so that all agencies take responsibility for making adequate investments to operate and maintain the transit system.

### Extend Useful Life and Reprioritize Capital Replacement

Bay Area transit operators must work towards extending the life of their bus and rail vehicles, thus getting more mileage from the fleet before purchasing new capital assets. There may be cases where maintenance and service facilities could be more fully utilized to fix and maintain the existing stock, reducing the capital replacement shortfalls.

### Dedicate Sales Tax Funds to Transit Operations and Maintenance

Because transit is a cornerstone of the Bay Area transportation system, expenditure plans for local transportation sales taxes should include funds for transit operations and capital replacement as well as transit expansion projects.

### Functionally Consolidate or Institutionally Merge Transit Operators

While there is no "ideal" number of transit operators for our nine-county region, having some two dozen separate operators clearly complicates the task of providing a seamless regional transit system. The region should seriously evaluate the benefits and costs associated with merging transit agencies and consolidating functions to improve cost-effectiveness and service design. This evaluation is currently under way for the bus services in the suburban East Bay. Functional consolidation would pool limited funds, promote uniform fares and provide more responsive regional service. It also offers potential economies of scale in terms of joint purchases, maintenance facilities, marketing and customer services. Napa County's 2001 merger of its six operators into a single countywide operation could serve as a successful model for merging bus operations in other suburban areas. Significantly, voter-approved Regional Measure 2 requires a study of regional rail operators — including BART, Caltrain, Altamont Commuter Express and the Capitol Corridor rail service — and consideration of options from functional consolidation to an institutional merger.

### Challenge BART to Go to the Voters — Again

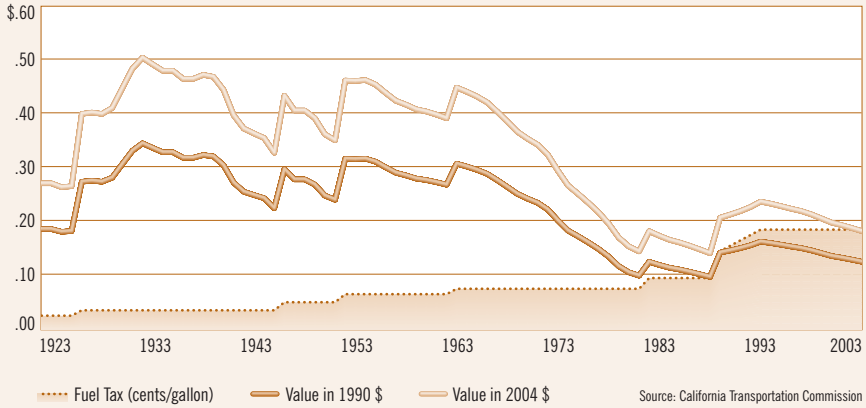
Voters in Alameda, Contra Costa and San Francisco counties said yes to a property tax increase on the November 2004 ballot to seismically strengthen the Transbay Tube, stations and elevated tracks. Since BART's capital needs are the largest among Bay Area operators, the agency may need to place a second bond measure on the ballot at a future date to deal with its unfunded $1.4 billion capital replacement needs.

## State Highways Showing Their Age

The State Highway System is one of California's most valuable transportation resources. It is the foundation on which the vitality of California's economy is built, linking people and goods with growing urban centers and major international ports.

Much of the State Highway System was planned, designed and built in the 1950s through the 1970s, and some of it has never been rehabilitated. Not only have these facilities aged beyond their design life, they have been subjected to more truck and auto traffic than originally assumed. This combination of age and increased usage has caused faster rates of pavement deterioration, concentration of accidents and increasingly longer travel times.

### California's Fuel Tax Loses Value



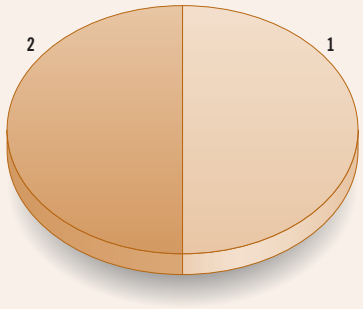

State law requires Caltrans to prepare a 10-year State Highway Rehabilitation Plan for all state-owned highways and bridges. An increased emphasis on safety and roadway rehabilitation is reflected in the 2004 SHOPP (State Highway Operations and Protection Program), with the goal of reducing fatal and injury accidents and the number of miles of distressed pavement. Other goals include easing congestion through operational improvements, restoring highway planting and fixing rest areas.

### Transportation 2030 Challenges

- As illustrated in the pie chart on page 45, Bay Area SHOPP needs over the 25-year life of the 2030 Plan total about $14 billion, while projected revenues over the same period are expected to cover only $7 billion, resulting in $7 billion in unfunded needs.
- The Commission has not yet identified any new funding sources for the $7 billion in unfunded SHOPP needs in Transportation 2030. The state will need to tap into its existing or new resources to pay for this shortfall.
- The magnitude of the state highway rehabilitation shortfall suggests that maintenance may have to be delayed on some highways, thus increasing overall road repair costs.


BILL HALL, CALTRANS

## Projected State Highway Maintenance Needs 2005–2029




| | | |
|---|---|---|
| 1 | Funds Available | $7 billion |
| 2 | Unfunded | $7 billion |
| | **Total Need** | $14 billion |

Source: Caltrans

- Insufficient funds to maintain system management equipment like traffic detection sensors, ramp meters, changeable message signs, and other incident-management programs will result in lost opportunities to ease congestion.

- Investments must be made to address serious bottlenecks and close gaps in our highway system. These additional lanes will require additional maintenance and more funding.

"MUCH OF THE STATE HIGHWAY SYSTEM WAS PLANNED, DESIGNED AND BUILT IN THE 1950s THROUGH THE 1970s, AND SOME OF IT HAS NEVER BEEN REHABILITATED."

# Calls to Action

### Index the State Gas Tax to Inflation

It is long past time for the Legislature to increase the state gasoline tax. Since it was last raised in 1990 (from 9 cents to 18 cents per gallon), the gasoline tax has lost 25 percent of its value to inflation (see graph on facing page). Today, California's gas tax is lower than that of 36 other states, and is below the national average of 20.4 cents per gallon. At the very least, the state gas tax should be indexed to inflation — as it is in 11 other states — so that the gas tax would increase in direct proportion to the rate of inflation.

### Increase Truck Weight Fees

Heavy trucks cause serious damage to pavement. Proceeds from truck weight fees levied by the state that are deposited into the State Highway Account for road repair and maintenance no longer are sufficient to repair truck-related damage to our highways. The state must re-evaluate the existing truck weight fee structure and increase fees to reflect the true cost of highway repair — perhaps by considering distance-based fees that also factor in how far a truck travels on our state highways.

## Top 10 Urban Areas With Unacceptable Ride Quality on Highways and Arterials

| Urban Area | Percentage Unacceptable |
|---|---|
| Kansas City | 71% |
| **San Jose** | **67%** |
| St. Louis | 66% |
| Los Angeles | 64% |
| **San Francisco-Oakland** | **60%** |
| San Diego | 58% |
| New Orleans | 55% |
| Boston | 49% |
| Sacramento | 49% |
| Oaklahoma City | 47% |

Source: The Road Information Program (TRIP) analysis of 2003 Federal Highway Administration data

### Trim the STIP to Support the SHOPP

Without an increase in revenues to maintain the state highway system, the state will be faced with deferring more and more of its maintenance needs. More dollars may need to be diverted to state highway maintenance needs, which are funded through the State Highway Operations and Protection Program (SHOPP). Unfortunately, this will leave less state funding available for new road and transit projects in the State Transportation Improvement Program (STIP).

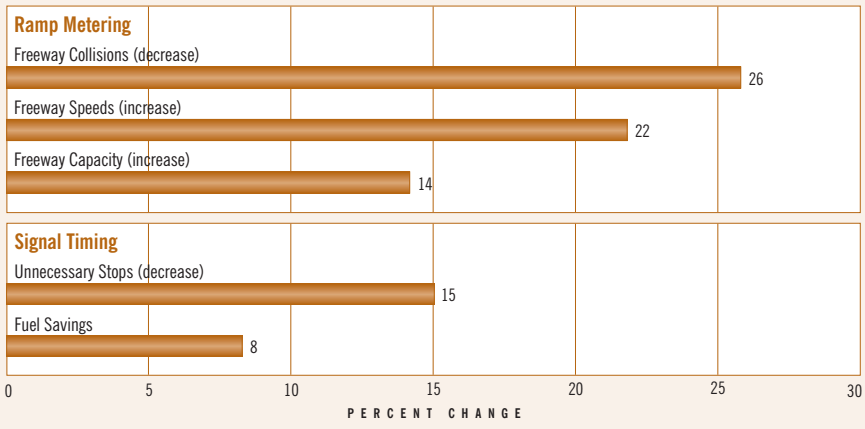
# system efficiency

## Squeezing Better Mileage From the Existing Network

The effort to make Bay Area travel easier and more convenient stretches across multiple jurisdictions, requiring MTC to work in concert with many other agencies to ensure not only that each piece of the regional transportation system works as efficiently as possible, but that the components mesh smoothly to create a unified network. The Regional Operations Program encompasses:

- 511 traveler information (511 Traffic, 511 Transit, Regional Rideshare Program, transportation marketing)
- Incident management, including Freeway Service Patrol (FSP), call boxes, emergency vehicle preemption of traffic signals
- Traffic operations, including Caltrans' Regional Transportation Management Center, smart corridors, center-to-center data exchange, coordination of traffic signals across city boundaries, etc.
- Transit operations, including transit automatic vehicle location systems, priority at traffic signals, express bus services, etc.
- Technical assistance for cities and counties (pavement management, traffic engineering)
- Performance monitoring
- TransLink® (discussed separately on page 60)

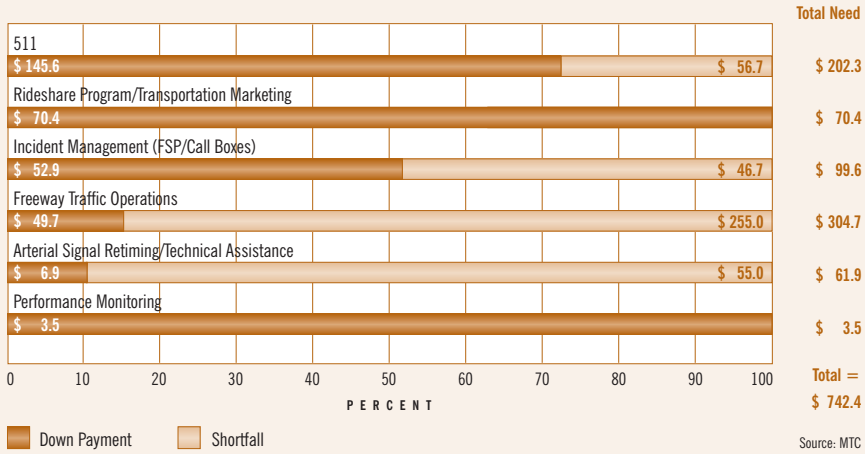
### Better Roadway Management Yields Multiple Benefits




Sources: Minnesota Dept. of Transportation; U.C. Berkeley

### Funding for Bay Area Regional Operations Program, 2005–2029

In millions of dollars




Source: MTC

The Regional Operations Program will improve the efficiency of the existing regional transportation system. For example, ramp metering and traffic signal retiming have been shown to produce measurable benefits for motorists (see graph above). And the roving tow trucks of the Freeway Service Patrol save Bay Area travelers some 4.5 million hours of delay per year, returning $8.20 in benefits for every $1 of cost. On the transit side, AC Transit's Rapid Bus program on San Pablo Avenue has decreased travel time by 14 percent and has increased peak-period ridership by 66 percent; moreover, 19 percent of the new riders previously made the trip by car.

## Transportation 2030 Challenges

- Full deployment of the Regional Operations Program is expected to cost about $742 million over 25 years, yet projected revenues over this period total only $329 million, or slightly more than 44 percent of anticipated needs.
- MTC's long-term vision for freeway traffic operations includes real-time monitoring of speed and volume on all

freeways, increased management of congestion through message signs and ramp meters, and automated data exchange (including radio between jurisdictions on all freeways). Given limited funding, this vision likely will be implemented only on the most congested freeways.

- An aggressive deployment of new technologies would maximize the Bay Area transportation network's efficiency by: improving data collection for 511 (including driving times for carpool lanes and arterial streets as well as mixed-flow freeway lanes); making available multilingual phone and Web options for all travel information; and improving congestion management through enhanced traffic-flow monitoring and real-time communication with motorists.

- Expansion of the Freeway Service Patrol (with new weekend, midday and morning service hours) would enhance both congestion management and incident response.

## Transportation 2030 Decision

In the Transportation 2030 Plan, MTC will add $271 million to the $58 million previously committed to fund core programs benefiting the entire region. This includes 511, the regional rideshare program, transportation marketing, freeway operations, incident management and funding for three years of regional signal timing and technical assistance. However, full deployment of the Regional Operations Program will require an additional $413 million to sustain and enhance the existing programs.

# Calls to Action

### Increase Vehicle Registration Fee for Incident Management

The successful Freeway Service Patrol program is partially funded through a $1 assessment on vehicle registrations. Since accidents, stalls, spilled debris and other incidents account for up to 50 percent of traffic congestion, doubling the assessment to $2 would provide additional dedicated funding for programs to reduce incident-related traffic delays.

### Give Bay Area Freeways a High-Tech Edge

Real-time information on traffic conditions throughout the Bay Area freeway system is essential to Caltrans' and the CHP's ability to immediately summon the right type of assistance (e.g., tow truck, ambulance, etc.) to where it is needed, and to inform travelers of the danger ahead. Sufficient State Highway Account funding must be dedicated for better operation of the existing freeway system.

### Implement Freeway Metering Lights

Traffic lights at freeway on-ramps are a proven and effective way to reduce freeway delays and increase freeway volumes. Recent studies have documented that local streets flow better after metering is implemented. Objections from a few cities about "spillover" traffic on local streets must be overcome so that the regional interest in reducing freeway congestion can prevail.

GEORGE DRAPER

### Improve Arterial Operations

Many arterials throughout the Bay Area are routinely congested. Retiming the traffic signals is a cost-effective way of minimizing normal peak-period congestion for cars and buses, especially where major roads pass through several cities. "Smart Corridors" enable cities to quickly respond to major traffic fluctuations (e.g., traffic that is diverted onto city streets from a nearby freeway after a major collision; congestion after a sporting event, etc). To ensure efficient operation of the arterial portion of the regional transportation system, the Bay Area must provide a stable source of operating funds.

### Clear Incidents Quickly

Incompatible radio systems and conflicting institutional priorities among the CHP, local police and fire departments, and other agencies can result in chaotic responses to major highway accidents and needless delay in reopening the lanes to traffic. Communications is essential to teamwork, and the Bay Area must commit itself to the goal of having all first responders able to communicate with each other.

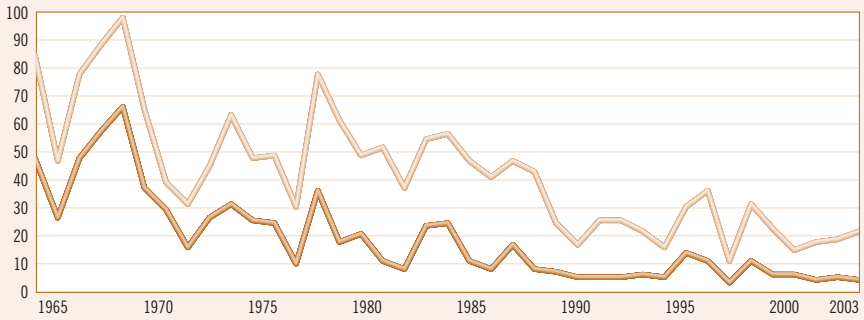
## Clean Air in Motion

The Bay Area has some of the cleanest skies of any metropolitan area in the United States. Regional air quality has steadily improved, due in large part to cleaner motor vehicles and fuels, and reduced emissions from industrial and commercial sources. The number of days on which ozone levels exceed state and federal standards has fallen dramatically. But more progress is needed to ensure healthy air quality every day. While the Bay Area meets the federal one-hour ozone standard, the region currently does not meet either the state's more stringent one-hour ozone standard or the federal government's newer eight-hour standard.

Many different sources contribute to air pollution. Stationary sources such as factories, power plants and dry cleaners; mobile sources such as cars, buses, planes, trucks and trains; and naturally occurring sources like windblown dust all contribute to air pollution. Among the principal pollutants considered harmful to people and the environment are the following.

- Ozone is a gas formed by a chemical reaction between oxides of nitrogen ($NO_X$) and volatile organic compounds (VOC) in the presence of heat and sunlight. "Good" ozone occurs naturally about 10 to 30 miles above the earth, while "bad" ozone forms in the earth's lower atmosphere (ground-level). Motor vehicle exhaust, industrial emissions, gasoline vapors and chemical solvents are some of the major sources of $NO_X$ and VOC that help to form ozone. Sunlight and hot weather cause ground-level ozone to form in harmful concentrations in the air, which is often referred to as summertime smog.

**Annual Exceedances of the National and State One-Hour Standards For Ozone in the Bay Area**




Source: Bay Area Air Quality Management District

- Particulate Matter (PM) includes dust, dirt, soot, smoke and liquid droplets found in the air. Particles can be suspended in the air for long periods. Some particles are directly emitted into the air from sources such as cars, trucks, buses, factories, construction sites, tilled fields, unpaved roads and burning wood. Others may be formed through chemical change of gases such as when gases from burning fuels react with sunlight and water vapor, or when fuel combusts in motor vehicles. Serious health problems may arise from breathing particulate matter.

- Carbon monoxide (CO) is a colorless, odorless gas formed when carbon in fuel is not burned completely. CO is a component of motor vehicle exhaust, which contributes about 56 percent of all CO emissions nationwide. Non-road engines and vehicles (such as construction equipment and boats) contribute about 22 percent of all CO emissions nationwide. Areas with heavy traffic congestion generally have higher levels of CO.

- Carbon dioxide ($CO_2$) is a major component of the carbon cycle, and results from the combustion of organic matter if sufficient amounts of oxygen are present. $CO_2$ also is produced by various microorganisms in fermentation and cellular respiration. It is present in the Earth's atmosphere at a low concentration and acts as a greenhouse gas.

### Transportation 2030 Challenges

MTC, along with the Bay Area Air Quality Management District (BAAQMD) and the Association of Bay Area Governments (ABAG), prepares and implements plans to achieve the ozone standards. The most recent plan for the state standard is the 2000 Clean Air Plan, and the most recent plan for the national standard is the 2001 Ozone Attainment Plan. Each plan includes measures to reduce emissions of ozone precursors from a variety of sources.

The Draft 2005 Bay Area Ozone Strategy, which is currently being prepared by MTC, the Air District and ABAG, is the update to both these plans. The Draft 2005 Ozone Strategy will include a triennial revision to the Bay Area's strategy to attain the California state one-hour ozone

standard. Stationary, mobile and transportation control measures are key features in the Draft 2005 Ozone Strategy.

The Bay Area already attains both federal and state standards for carbon monoxide. Efforts to attain the standards for particulate matter will be the subject of future air quality planning exercises. Responsibility for $CO_2$ control lies with the California Air Resources Board (CARB). Because CARB's strategy for reducing motor vehicles' $CO_2$ emissions emphasizes the use of hydrogen fuel cells, these solutions are likely to reduce transportation revenues generated by taxes on gasoline and diesel fuel.

## Transportation 2030 Decision

The Commission in December 2003 adopted a new clean air goal for the Transportation 2030 Plan. The key objectives include: (1) achieve additional reductions in motor vehicle emissions through effective transportation control measures; (2) work with the Air District to develop new episodic control strategies for predicted high-ozone days; and (3) help reduce particulate matter from buses and other heavy duty vehicles.

The Commission also committed $36 million toward a comprehensive program to improve Bay Area air quality, which is to be leveraged with $240 million from the Air District's Transportation Fund for Clean Air.


JOHN BENSON

## Calls to Action

### Spare the Air!

Established in 1991, the Air District's Spare the Air program is focused on educating the public and promoting changes in behavior that help prevent poor air quality. A Spare the Air day is a day forecast to have ozone levels high enough to exceed federal health-based standards. MTC, the Air District and ABAG, along with our partners, should deploy focused and specific strategies to reduce emissions on Spare the Air days. In particular, MTC will replicate its successful 2004 pilot Free Morning Rides program with BART and LAVTA and expand the program to all public transit operators in the Bay Area during the 2005 ozone season.

### Scrap the Oldest, Most Polluting Cars

The Air District's Vehicle Buy-Back Program pays $650 for operating and registered vehicles from 1985 and earlier. These cars are then scrapped by dismantlers under contract to the Air District. MTC, the Air District and other partners will find ways to supplement this voluntary program with additional federal funds.

### Reduce Particulate Matter from Buses/Heavy Duty Vehicles

The Environmental Protection Agency's (EPA) emission standards for post-1994 manufactured diesel trucks and buses have resulted in a 90 percent reduction in emissions of particulate matter. Older trucks and buses should be retrofitted with particulate traps to reduce emissions. EPA should continue to work with manufacturers to further reduce emissions from diesel engines, including non-road engines such as those found on construction equipment. MTC, the Air District and ABAG, in consultation with EPA, will find ways to further reduce particulate matter through new funding assistance programs, similar to MTC's $14 million program to retrofit 1,700 diesel buses operated by 12 Bay Area transit agencies.

### Retrofit 1980–1994 Automobiles

The California Air Resources Board (CARB) has developed a program to replace the evaporative canister in middle-aged to older cards in order to evaluate the reduction of emissions. In a pilot program that could supplement CARB's testing, MTC plans to fund a similar replacement in 1980-1994 passenger vehicles.

# Broadening Access To Mobility

Central to a good quality of life is the ability to get to and from work, school, medical appointments, shopping areas, recreational sites and other destinations. In addition to highways, and local streets and roads, the Bay Area has an extensive array of public transit services and programs intended to address the needs of all residents. But the current system does not always meet the mobility needs of people with disabilities, frail elderly people and some low-income residents. These people need better mobility options. Identifying and implementing the necessary improvements will require the joint efforts of regional and local stakeholders.

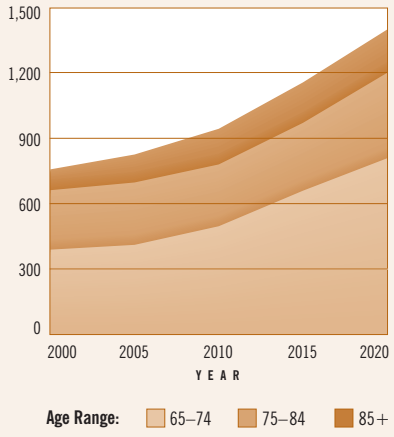
MTC and its partners are leading the way to expand mobility for those whose transportation options are limited due to age, disability or income. In December 2003, MTC began seeking ways to stimulate creative, collaborative, cost-effective transportation solutions for older adults, the disabled, low-income residents and youths. As a first step, agency staff convened a task force comprised of representatives from transit agencies, community-based organizations, advocacy groups and other stakeholders to discuss how best to plan for and deliver expanded services that are convenient, safe, affordable and accessible to and from key destinations. The Access to Mobility effort is aimed at the following groups.

## Older Adults

As people age, they increasingly face limitations on their ability to drive or use fixed-route transit. In 2000, there were some 760,000 persons aged 65 and older in the nine-county Bay Area (see graph above).

**Bay Area Senior Population Growth, 2000–2030**

Population in thousands




Source: ABAG Projections 2002

By the year 2020, the number of people in this age group will increase by 84 percent to 1.4 million. And the number of people age 85 or older, the group with the most severe mobility problems, will grow by 108 percent during this time.

## Persons With Disabilities

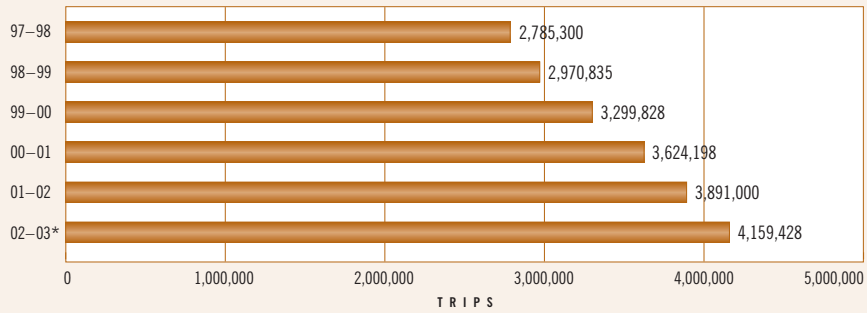
Since the passage of the Americans With Disabilities Act (ADA) in 1990, transit agencies and local jurisdictions have taken numerous steps to ensure their services and programs are accessible for persons with disabilities. These include providing paratransit service that is complementary to fixed-route transit service for use by people whose disabilities prevent them from riding fixed-route transit. In all nine Bay Area counties, public paratransit programs have expanded greatly since full compliance was achieved in 1997 (see graph below), and are likely to carry even more riders as the population ages. MTC will seek to broaden access to transportation for persons with disabilities by better coordinating resources among social service and transportation providers and interest groups.

## Youth

School-provided bus services have all but vanished in the last 30 years in the Bay Area. While public transit agencies in the region have attempted, with varying success, to fill this school transportation gap, the decline of the "yellow school bus" is creating serious problems for parents, children, communities, schools and transit agencies. The geographically dispersed nature of the childcare system — featuring mostly small-scale providers spread throughout residential neighborhoods — often results in complex, time-consuming trips for families that rely on public transportation, and increased driving demands on parents with cars. The need to provide safe, convenient and affordable transportation for children to and from

**Regional Trend in Number of Paratransit Trips Provided**

Fiscal year 1997–98 through 2002–03




*Estimated

Source: MTC

childcare has emerged as key in welfare-to-work and other related planning studies.

## Low-Income Persons

The Commission has developed a Lifeline Transportation Program to specifically address the needs of low-income individuals (see pages 52–55).

## Transportation 2030 Challenges

- Responsibility for the transportation of low-income persons, youth, seniors and persons with disabilities is often shared among transportation and social service agencies. Many state and federally funded programs provide transportation for low-income persons, seniors and persons with disabilities, including health, job-training and senior programs. Removal of institutional, regulatory and funding restrictions could promote enhanced coordination among the various entities, thereby gaining more productivity out of each dollar spent.

- Land-use decisions need to support development of affordable housing with universally-designed units for use by disabled residents. Housing should be near transportation services and take into account access to essential destinations, such as grocery stores, daycare centers, medical offices, etc. When new social service facilities are sited, agencies need to consider their accessibility by public transit and wheelchair, as well as auto, bicycle and pedestrian access.

- Additional planning is needed to quantify the transportation needs and service shortfalls for these groups so that planners and policymakers can make informed decisions based on reliable data and relevant demographic information.

# Calls to Action

### Remove State-imposed Barriers

MTC, transit agencies and local jurisdictions will seek legislative or regulatory changes at the state level to address key barriers to coordinated transportation programs. These include the difficulty and cost of obtaining insurance for low-income persons and transportation providers alike, funding restrictions specific to state or federal programs, and the lack of available data on social service agencies' transportation expenditures.

### Loosen Medicaid Restrictions

MTC will continue to advocate for regulatory changes to allow Medicaid to pay for non-emergency medical trips.

### Enhance Local Demographic Information

Presently, we lack a comprehensive profile of transit riders in terms of factors such as ethnicity/race, income status, age and auto ownership. More consistent and timely data would provide planners and policymakers with tools to better assess the needs of low-income and minority transit riders, and thus better inform future funding actions. MTC and transit operators will take steps to improve the ways we collect, compile and disseminate basic demographic and travel data for various Bay Area population groups.

### Fine-tune TLC and HIP

MTC will encourage applicants for funding through its Transportation for Livable Communities (TLC) and Housing Incentive Program (HIP) initiatives to address specific mobility barriers faced by persons with disabilities or older adults.

GEORGE DRAPER

### Think Beyond the Bike

Regional and local bicycle/pedestrian planning efforts must consider and fund projects that make paths of travel to fixed-route transit services accessible and usable by older pedestrians and persons using wheelchairs or other mobility aids.

### Identify Strategies for Enhanced Use of Taxis

Enhanced taxi services, such as guaranteed-ride-home or voucher programs, have been identified as potential solutions through community-based and welfare-to-work planning, as well as in efforts to address the mobility needs of older adults and persons with disabilities. However, taxi service is limited or not available at all in some rural or suburban communities, and most taxi vehicles are not wheelchair accessible. MTC and its partners should identify strategies to better utilize this important mode of transportation.

## Providing a Transportation Lifeline

MTC must consider the needs of all travelers in striving for an equitable distribution of mobility benefits. Whether the destination is work, school or the doctor, all Bay Area residents — regardless of income, age or disability status — must be able to get from place to place. Yet many low-income households in the Bay Area can't afford to own and operate one car, let alone the two vehicles that middle-class families often consider essential. It was with this population in mind that MTC began working to identify a network of critical transit routes and other transportation services that provide a vital lifeline for low-income residents.

Included in MTC's 2001 Regional Transportation Plan was a *Lifeline Transportation Network Report,* which identified existing transit routes most critical to meet the needs of low-income neighborhoods. At the time the report was completed, nearly half (43 percent) of all routes operated by 19 transit operators within the region were identified as Lifeline routes. The report also identified gaps — both spatial and temporal — that prevent full access to services that people need, and recognized that solutions to address these gaps must be developed and planned for at the local level. The report pointed to a wide variety of transportation solutions beyond traditional fixed-route transit, based on those most appropriate to the community's needs.

MTC has taken the following steps to advance the region's understanding of transportation issues specific to low-income communities.

### Community-Based Transportation Planning Program

Both the *Lifeline Transportation Network Report* and the *Environmental Justice Report* for the 2001 Regional Transportation Plan recommended community-based transportation planning as a first step to address gaps and barriers faced by low-income communities. MTC initiated this program in 2002, and identified 25 communities as subjects for these plans. To date, five such plans have been completed, and MTC anticipates completion of the remaining plans within the next two to three years. Led by county congestion management agencies in consultation with community-based organizations and MTC, the plans also inform county transportation decisions, including transportation sales tax expenditure plans.

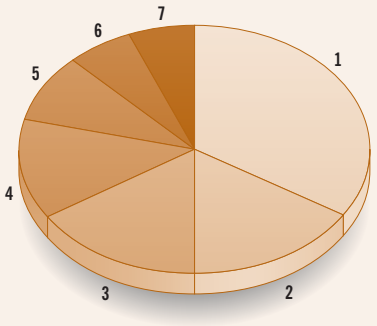
Potential transportation improvements are identified to address gaps specific to each low-income community. Solutions may include expanding fixed-route transit, children's shuttles, vanpool services, or car share or other auto-related projects. In some cases, new capital improvements such as bus stops, benches, shelters or other enhanced amenities are called for.

### LIFT (Low Income Flexible Transportation) Program

Recognizing that there is no one solution to filling the gaps in the existing transportation network for low-income communities, MTC launched the LIFT Program to support a wide range of transportation services. LIFT funds have been used to create new and expanded public transit services, children's shuttles, auto-loan programs, rideshare activities and guaranteed-ride-home programs (see pie chart above).

**Types of LIFT Projects**

Total: 32 Projects




| | | Percent of Total |
|---|---|---|
| 1 | Fixed-Route Transit | 34% |
| 2 | Children's Shuttle | 16% |
| 3 | Shuttles/Demand Response | 16% |
| 4 | Guaranteed Ride Home | 13% |
| 5 | Mobility Manager | 9% |
| 6 | Fare Assistance | 6% |
| 7 | Auto Programs | 6% |

Source: MTC

The LIFT Program began in 2000 and has been funded with a variety of federal, state and local transportation dollars, as well as additional social service matching funds, bringing the total investment for this program to nearly $21 million. To date the LIFT program has provided support to 32 creative transportation solutions in all nine Bay Area counties.

The LIFT Program encourages a collaborative approach to addressing the transportation challenges faced by residents of Bay Area low-income communities, including low-income elderly and disabled residents. Transit providers work closely with social service agencies, community-based organizations and other key stakeholders to make a difference in the lives of low-income Bay Area residents.


KIT MORRIS

## Transportation Spending Study

The cost of transportation is often a significant barrier for low-income individuals in getting to school, work or other essential destinations. MTC and the Public Policy Institute of California (PPIC) collaborated to study travel patterns and transportation costs for low-income persons of employable age for work and training purposes. The report, *Transportation Spending by Low-Income California Households: Lessons for the San Francisco Bay Area* was published under the auspices of PPIC in July 2004, and identified the following key findings.

- Transportation is the third-largest budget item (after housing and food) for low-income households in California's metropolitan areas.
- Low-income households allocate a slightly smaller proportion of household expenditures to transportation than do other households.
- Cost appears to be a barrier to vehicle ownership among low-income households in the Bay Area.
- Cost is unlikely to be a barrier to transit use for most low-income households but may be a barrier for some.
- Low-income commuters are less likely than other workers to drive alone and more likely to carpool, walk or travel by bus.
- Low-income workers have somewhat shorter commute times than other workers.

## Transportation 2030 Challenges

- Additional community-level planning is needed to quantify transportation needs and service shortfalls for low-income residents so that planners, practitioners and policymakers can make informed decisions based on reliable data and relevant demographic information. Taking these steps will help establish clear objectives for the region's investments, and define desired outcomes, performance and evaluation measures.

- Recommendations will be forged over the next few months for the use of funds dedicated to Lifeline transportation services. MTC and program stakeholders must consider strategies, such as requiring matching funds, to expand the Lifeline Transportation Network. Guidelines also should be established to improve project sustainability by determining how most effectively to build long-term commitments using the seed money from LIFT and other funding programs.

## Transportation 2030 Decision

The Commission committed $216 million to create a regional Lifeline Transportation Program for residents of low-income communities throughout the Bay Area. The program's objectives include better identification of gaps in transit service, affordability and safety; closer coordination with other agencies to improve the transportation options for low-income communities; and securing adequate resources to respond to Lifeline mobility needs.

# Calls to Action

### Finish What's Been Started

County congestion management agencies, in concert with MTC and community organizations, must complete all 25 of the Community-Based Transportation Plans identified in the 2001 *Lifeline Transportation Network Report*.

### Target New Lifeline Funding

New Lifeline funding is intended to improve mobility for residents of low-income communities and, more specifically, to fund solutions identified through the community-based transportation plans. Each community's needs are unique and will therefore require different solutions to address them. MTC staff will work closely with local transportation service agencies and other stakeholders to craft a proposal to direct new funding, and to identify potential opportunities to increase the funding of Lifeline-related projects.

### Put Local Dollars to Work

Cities and counties must ensure that needs assessments and recommended strategies emerging from key regional and local planning efforts are included in local sales tax programs and other local planning and funding efforts.

### Identify Strategies to Increase Access to Autos

Automobiles can greatly improve mobility for low-income households, especially those with children requiring transportation to school or day care. However, only two-thirds of California's low-income households own cars, compared to 90 percent of other California households. Further research is needed to ascertain what it costs to own and operate a vehicle, the types of vehicles low-income persons own, and barriers that prevent access to cars (lack of insurance, difficulty in obtaining a driver's license, costs for purchasing a car, etc.). MTC and its partners also will seek to identify legislative, programmatic or regulatory remedies to pursue in order to improve access to automobiles.

### Make the Land-Use Connection

Land-use strategies developed by local jurisdictions must address low-income transportation planning issues, including the linking of affordable housing to transit facilities.

### Make a Federal Case

Several Lifeline transportation initiatives receive funding through the federal Job Access and Reverse Commute Program (JARC). MTC will advocate for increased JARC funding to metropolitan areas on a formula basis.

## Walk and Roll!

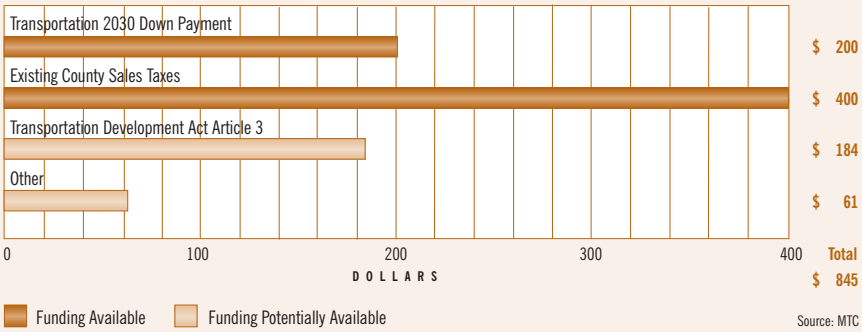
Walking and bicycling are two important means of mobility in the Bay Area. Laying sidewalks for pedestrians and wheelchairs, striping bicycle lanes, installing bicycle parking at transit stations and building multi-use trails boost the convenience and utility of these modes of travel, and enhance a community's health and well-being.

Quantifying the needs of pedestrians, bicyclists and wheelchair users is a difficult task. And the cost of building a complete bicycle and pedestrian network remains unknown. The regional bicycle network identified in MTC's Regional Bicycle Plan has a rough estimated cost of $1 billion. But this network includes only regionally significant routes selected from countywide bicycle plans. Total projected costs rise to $1.5 billion when full buildout of the countywide bicycle plans is added to the Regional Bicycle Plan. MTC will soon complete a regional pedestrian plan to identify needs and associated costs for improvements to pedestrian facilities regionwide.

Despite the uncertainty over the ultimate price tag for Bay Area bicycle and pedestrian facilities, it is clear that available resources fall far short of meeting the region's needs. Nonetheless, the region is making significant strides. In addition to MTC's first-ever funding commitment for a regional bicycle and pedestrian program (see page 58), Alameda, Santa Clara and San Francisco counties have committed close to $240 million in transportation sales tax funds for bicycle and pedestrian needs. The sales tax measures passed by Marin, Sonoma, Contra Costa and San Mateo counties in November 2004 added another $160 million. As well, an estimated $245 million in traditional funding sources is available for nonmotorized needs over the next two decades. These sources include the Transportation Development Act, the Transportation Fund for Clean Air, the Bicycle Transportation Account, and Transportation Enhancement Funds.

**Funding Available for Bicycle and Pedestrian Needs, 2005–2029**

Dollar amounts in millions




Source: MTC

> "THE COST OF BUILDING A COMPLETE BICYCLE AND PEDESTRIAN NETWORK REMAINS UNKNOWN, YET IT IS CLEAR THAT AVAILABLE RESOURCES FALL FAR SHORT OF MEETING THE REGION'S NEEDS."

### Transportation 2030 Challenges

- The Regional Bicycle Network consists of over 1,500 miles of bicycle paths, lanes and routes, including facilities from each county's bicycle master plan and the entire Bay Trail. Upon completion of this network, over two-thirds of the Bay Area's residents will be within a half-mile of a Regional Bicycle Network route.

- The need for pedestrian facilities (sidewalks, pedestrian signals, marked crosswalks, wheelchair-accessible curb cuts, etc.) exists in every neighborhood. But there is insufficient funding to address these demands. To prioritize the myriad needs — and help develop a regional pedestrian plan — MTC proposes to focus on projects that improve access to transit, schools and regional activity centers.

- MTC's Regional Bicycle and Pedestrian Program will fund eligible projects that are part of the Regional Bicycle Network, which supports access to schools, transit stations and regional activity centers.


JOYCE BENNA

## Transportation 2030 Decision

The Commission in December 2003 dedicated $200 million over 25 years for bicycle and pedestrian improvements throughout the Bay Area, including portions of the Regional Bicycle Network. In addition, the Commission approved a $27 million annual commitment to the Transportation for Livable Communities/ Housing Incentive Program (TLC/HIP), which funds the planning and construction of bicycle, pedestrian and transit access projects to revitalize the region's downtowns and diverse neighborhoods.

## Calls to Action

### Address Nonmotorized Transportation Needs

Bicyclists, pedestrians and wheelchair users must be full partners in the planning process, and bicycle facilities and walkways must be considered, where appropriate, in conjunction with all new construction and reconstruction of transportation facilities. Project sponsors must also consider safety and contiguous routes for bicyclists and pedestrians. These actions greatly reduce the future cost of retrofitting facilities for nonmotorized travelers, and encourage safe and convenient bicycling or walking. MTC will monitor routine accommodation of nonmotorized transportation needs in its programming processes.

### Support Safe Routes to School Programs

MTC and its partners support California's Safe Routes to Schools Program, which has been extended until 2008 on a pilot basis under recently signed legislation. This program has proven to be an effective way to reduce peak-hour congestion near schools and create hospitable walking and bicycling environments for children. In addition, the reauthorization of the federal surface transportation bill may include funds for a new national Safe Routes to School program.

### Develop More Comprehensive Data on the Amount of Walking and Bicycling

Presently, we lack good, comprehensive information on the amount of walking and bicycling that occurs and, in particular, where it occurs. Collision statistics collected by the California Highway Patrol and local law enforcement present an incomplete picture of safety, since there tend to be more cyclists and pedestrians (and more collisions) in areas such as university and school environments and downtown districts. By the same token, cyclists and pedestrians often avoid intersections and roadways they perceive to be unsafe. More comprehensive information on pedestrian and bicycling activity by geographic locale is required to better target investments addressing the mobility and safety needs of pedestrians and cyclists.

### Support Walk- and Bike-friendly Transportation Sales Tax Measures

When developing transportation sales tax measures, counties should consider more funds for nonmotorized travelers. Most allocate about 2 percent to 5 percent of sales tax revenues to bicycle and pedestrian facilities. In some counties, this may not be sufficient to address the needs of bicyclists, pedestrians and wheelchair users. We therefore urge counties to work with local and regional bicycle coalitions and pedestrian safety groups to ensure that their local transportation sales tax expenditure plans devote sufficient resources to walking and bicycling.

### Give Bicyclists and Pedestrians a Little "TLC"

Cities, counties, and pedestrian and bicycle advocates should pursue funding opportunities through MTC's Transportation for Livable Communities/Housing Incentive Program (TLC/HIP) initiatives. These grants can be leveraged with non-transportation funding, such as community development block grants, redevelopment tax increment funds and Air District clean air funds. MTC has administered its successful TLC/HIP program since 1998. The Transportation 2030 Plan allocates $9 million annually amongst the nine Bay Area counties so they can launch county-level TLC/HIP programs. Santa Clara already has incorporated a county TLC and pedestrian program into its voter-approved sales tax expenditure plan. Contra Costa County followed suit in its sales tax reauthorization measure approved by voters in November 2004.

JOHN L. KIM

## A Seamless Transit Trip

Getting from point 'A' to point 'B' via public transit in the Bay Area should not be as challenging as it often is. Reducing travel times, providing more reliable connections, making it easier to pay, and ensuring that transfers are easy and safe will entice more of us out of cars and thereby help ease congestion and protect the environment.

The public has long demanded a more convenient and "seamless" transit network. Participants in MTC's outreach for the 2001 Regional Transportation Plan ranked improved transit connections as one of six top recommendations for getting more out of our existing transportation resources. The issue also was one of three priorities identified by focus groups for the Transportation 2030 Plan, and improved coordination among transit agencies was ranked a top priority in a Transportation 2030 Plan telephone poll.

### Transportation 2030 Challenges

In 2002, MTC launched a Transit Connectivity Project to identify key transfer barriers and recommend improvements. Barriers were identified in four categories:

- **Service connections –** infrequent service; uncoordinated schedules or poor schedule adherence
- **Transfer point information/amenities –** lack of signage; indecipherable or out-of-date information; lack of shelters, seating, safe environment, restrooms, food, etc.

> "IMPROVED COORDINATION AMONG TRANSIT AGENCIES WAS RANKED A TOP PRIORITY IN A TRANSPORTATION 2030 PLAN TELEPHONE POLL."

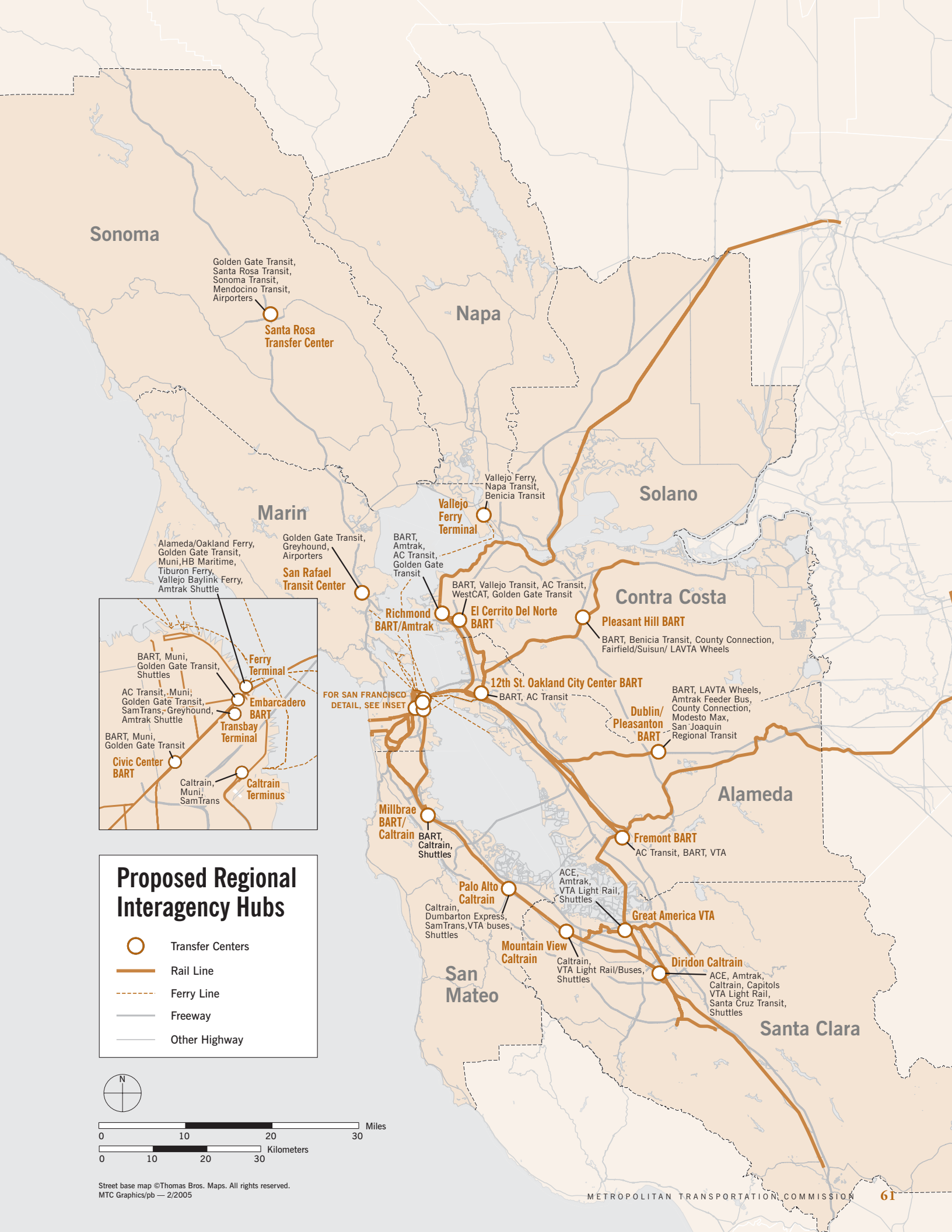
- **Pre-trip information –** lack of centralized telephone information; no access to customer service representatives at night and on weekends; barriers for non-English speakers
- **Fare policies and fare collection –** multiple and confusing fare and transfer policies

Transit agencies, MTC and others are currently taking a number of steps to improve transit connectivity. For example, cross-platform rail transfers have been established in Richmond, Millbrae and San Jose. The TransLink® regional electronic fare card has been successfully tested and is ready for full implementation beginning in late 2005. The Altamont Commuter Express and Santa Clara Valley Transportation Authority operate an integrated rail shuttle to work sites. San Francisco Muni and a number of operators are moving forward with real-time bus and train information at key transfer points.

Building on these connectivity improvements, the Transit Connectivity Project developed seven major recommendations for a seamless, regional transit system:

- Establish a regional network of transit hubs and services
- Develop a regional signage and information assistance program


PETER BEELER



# system efficiency


- Fully implement the regional transit trip-planning system
- Expand real-time transit information
- Improve customer telephone information services
- Develop a plan for "last mile" connecting services to mainline rail and bus lines
- Fully implement the TransLink® universal ticket throughout the region

Voter-approved Regional Measure 2 requires MTC to adopt a Transit Connectivity Plan by December 2005. This effort will build upon the recommendations from the Transit Connectivity Project. Regional Measure 2 also provides funding for a number of connectivity improvements including:

- Direct platform access between Muni and BART at Embarcadero and Civic Center stations in downtown San Francisco
- $20 million for expanded express bus service and related infrastructure
- $22 million to integrate TransLink® with operator fare equipment and expand the system to new transit services
- $20 million to assist transit operators in implementing real-time scheduling
- Planning assistance to develop an integrated fare program

## Transportation 2030 Decision

The Commission recognized the importance of improved transit connectivity when, in December 2003, it adopted a "Reliable Commute" goal, with the objective to "make it easier for people to make connections between transit systems." Improved connectivity also will help achieve other Transportation 2030 goals, including Clean Air, Access to Mobility and Livable Communities.

The Commission also committed $129 million toward TransLink®, adding to the $209 million in existing funding. However, an additional $26 million will be needed to fully deploy the TransLink® system.

## Calls to Action

### Fully Implement the TransLink® System

Full regional rollout of the TransLink® program will give riders a single universal fare card valid on all Bay Area transit lines, and will greatly simplify the fare collection process for operators.

### Establish a Regional System of Hubs and Services

Revenues from the voter-approved bridge toll increase (Regional Measure 2) provide an opportunity to create a coordinated, regional system of transfer stations and major rail and bus connections. (See map on page 61.) As a first step, the Regional Measure 2 Transit Connectivity Study will review the system of proposed regional interagency transit hubs identified in the January 2005 *Transit Connectivity Report.*

### Improve Customer Information and Assistance

MTC and the region are well poised to advance the recommended strategies emerging from the Regional Transit Connectivity Project by (a) improving regional signage, (b) expanding real-time transit information, (c) fully implementing the regional transit trip-planning system and (d) improving customer information telephone services. These support services are essential for attracting and retaining transit riders.

### Consolidate Transit Operations

As discussed on page 43, having some two dozen transit operators in the Bay Area can be a serious barrier to a seamless transit trip. A smaller, more manageable number of agencies can make better transit connections easier to achieve.


PETER BEELER

# Enhancing Livability by Connecting Transportation And Land Use

The Bay Area is expected to add nearly two million more people and 1.4 million new jobs over the next 25 years. Our transportation system's ability to handle this growth depends on where these people will live and where the jobs will be located. The bottom line: the Bay Area must accommodate more of its future growth in existing urban and suburban areas where good road and transit connections already exist.

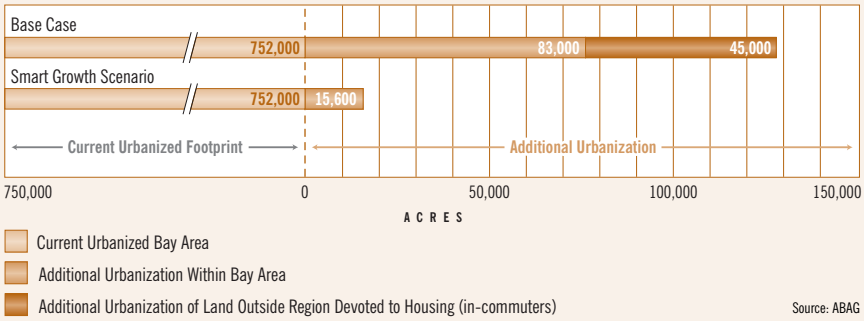
In preparing the Transportation 2030 Plan, MTC found strong public support for better connecting transportation and land use, developing more convenient transportation options, and pursuing greater regional cooperation on issues surrounding transportation and land use.

## Transportation 2030 Challenges

- Promoting transit-oriented development and implementing the regional Smart Growth Vision adopted in 2002 requires stronger partnerships and more collaborative planning among MTC, the Association of Bay Area Governments (ABAG), the Bay Area Air Quality Management District, Caltrans, other regional planning agencies, adjoining regions, public transit agencies, local governments and county congestion management agencies. While all these agencies share a critical interest in land-use decisions, it is local governments and the private sector that will ultimately determine land-use patterns and shape the design of communities and neighborhoods.

### Projected Greenfield Development

Acres converted to urbanized uses in region by 2020




Source: ABAG

- MTC directs a majority of the transportation funds under its control toward public transit projects, including significant expansion of the region's transit network. These investments will be cost-effective only if sufficient numbers of people live and work near the new rail stations, bus stops and ferry terminals. MTC and local governments will have to work together to ensure that supportive land uses around future transit nodes will be planned for and built.
- To boost transit ridership, conserve open space and create more walkable neighborhoods, the region must produce a broader array of housing types, more affordable to a wider range of incomes, and at higher densities than traditionally have been planned for. In order for these higher density developments to be embraced by the public, they will have to be livable and well designed.


PETER BEELER

- The strong demand for suburban living will continue. This will require the Bay Area to shape new suburban development patterns and retrofit existing suburbs to promote more walkable communities, reduce the number of single-occupant vehicle trips and coordinate transportation and land-use decisions.

- A shift toward more compact growth patterns and the implementation of the Smart Growth Vision could result in a litany of unintended consequences. Efforts to focus growth toward the inner Bay Area will have to be done in a way that minimizes displacing existing residents and business — including critical economic engines like warehousing and freight facilities.

## Transportation 2030 Decision

The five-point Transportation/Land-Use Platform adopted by MTC in December 2003 includes tripling funding for the Transportation for Livable Communities (TLC) Program to $27 million annually. The Commission asked staff to further develop and refine the platform and any supporting policies and programs — with input from a broad range of stakeholders (now represented through MTC's Transportation/Land-Use Task Force) — for release as part of this Transportation 2030 Plan. The platform is included as Appendix Two to this document.

# Calls to Action

### Condition Transit Funds on Supportive Land Use

MTC will develop a new policy to ensure that the investment of regional discretionary dollars for major new transit projects will be matched by local land-use patterns, plans and policies supporting adequate housing and employment densities.

### Provide More Land-Use Planning Funds to Partners

MTC will continue to provide planning funds to the county Congestion Management Agencies (CMAs), as well as the Association of Bay Area Governments (ABAG), to support better transportation and land-use planning, and the implementation of the regional Smart Growth Vision. MTC also will develop a new grant program for local governments to support more comprehensive land-use planning around transit stations and corridors.

### Develop Joint Planning Projects with Regional Neighbors

MTC, ABAG, the Air District and the metropolitan planning organizations in regions adjacent to the Bay Area will build on ABAG's work with the Interregional Partnership to develop new joint planning projects that address interregional commute and recreational travel.

### Create Smarter Suburbs

Local government and the private sector must collaborate with MTC and its regional partners to develop new approaches to suburban design that offer a wider variety of travel options for shorter-distance trips, particularly walking, bicycling, and smaller shuttle and jitney services.

### Evaluate Progress and Performance

MTC and ABAG must quantify progress through specific performance measures to gauge success in meeting the Smart Growth Vision's goals. We also must clearly communicate both successes and failures to our partners and the general public. A recent evaluation of the TLC/HIP programs led to significant changes to strengthen the programs.

# Getting There Safe And Sound

Improved safety for all local travelers is a key consideration in all transportation investment decisions. Safety and security issues fall into three key areas:

- Automobile accidents, including auto collisions with bicyclists and pedestrians
- Natural disasters, especially the seismic safety of the transportation infrastructure
- Threats to personal safety and to key facilities stemming from individuals committing a crime or from acts of terror

## Transportation 2030 Challenges

### Automobile, Bicycle and Pedestrian Safety

- Each generation of new vehicles — cars, buses and trains — builds in additional safety features, such as air bags and anti-lock brakes. Designs for new transportation facilities — bridges, freeway interchanges, pedestrian crossings, and the like — also build in the latest safety features.
- There are several programs that focus on addressing safety issues, including the federal Hazard Elimination Safety and the state's Safe Routes to Schools programs. Requests for this funding, however, are many times over the available revenues. More funding is needed to reduce the number of collisions and injuries.

**Injury and Fatal Collisions on Bay Area Roadways, 1998–2002**

| | Collisions 1998 | Collisions 1999 | Collisions 2000 | Collisions 2001 | Collisions 2002 | % Change 1998–2002 |
|---|---|---|---|---|---|---|
| Injury Collisions | 39,027 | 37,913 | 39,609 | 38,322 | 37,167 | –5% |
| Fatal Collisions | 433 | 405 | 444 | 449 | 451 | +4% |
| **Total Injury and Fatal Collisions** | **39,460** | **38,318** | **40,053** | **38,771** | **37,618** | **–5%** |
| Property Damage Only Collisions | 67,164 | 65,339 | 70,001 | 65,219 | 68,912 | +3% |
| **Total Collisions** | **106,624** | **103,657** | **110,054** | **103,990** | **106,530** | **0%** |

Source: California Highway Patrol

**Injury and Fatal Motor Vehicle Collisions Involving Pedestrians or Bicyclists, 1998–2002**

| | Collisions 1998 | Collisions 1999 | Collisions 2000 | Collisions 2001 | Collisions 2002 | % Change 1998–2002 |
|---|---|---|---|---|---|---|
| **Collisions Involving Pedestrians** | | | | | | |
| Injury Collisions | 3,258 | 3,099 | 3,173 | 3,080 | 2,910 | –11% |
| Fatal Collisions | 125 | 97 | 134 | 103 | 111 | –11% |
| **Subtotal** | **3,383** | **3,196** | **3,307** | **3,183** | **3,021** | **–11%** |
| **Collisions Involving Bicyclists** | | | | | | |
| Injury Collisions | 3,004 | 3,066 | 2,810 | 2,566 | 2,321 | –23% |
| Fatal Collisions | 18 | 19 | 17 | 20 | 19 | +6% |
| **Subtotal** | **3,022** | **3,085** | **2,827** | **2,586** | **2,340** | **–23%** |
| **Total Involving Bicyclists or Pedestrians** | **6,405** | **6,281** | **6,134** | **5,769** | **5,361** | **–16%** |

Source: California Highway Patrol

- Some agencies lack the staff expertise and time to regularly analyze data on collisions and their causes, and a few cities have reduced staff to the point that they no longer complete police reports on property-damage-only collisions.

### Seismic Safety

- The Bay Area and the state have made an immense investment to improve the seismic safety of key transportation facilities, including strengthening toll bridges to withstand a major earthquake. Since the state announced in August 2004 that Caltrans' costs for the toll bridge seismic retrofit program for state-owned spans (all but the Golden Gate) had ballooned to $8.3 billion, there has been an intense public debate about how to pay for these cost overruns. The Legislature completed an investigation into the root causes of Caltrans' repeated cost escalations. In the next few months, the governor and Legislature must develop an equitable long-term financing solution for this vital safety program.
- BART, likewise, needs considerable revenues to make the system earthquake safe. Fortunately, in November 2004, voters in Alameda, Contra Costa and San Francisco counties approved a $1 billion bond measure (backed by property taxes) to retrofit the transbay tube and other key facilities, but additional revenue will be needed to strengthen the entire BART system.

BILL HALL, CALTRANS

## Homeland Security/Terrorist Threats

- The Bay Area's transportation system presents numerous potential targets for a terrorist attack. Affected agencies need to collectively define these threats and respond with appropriate measures to protect travelers. Absent a greater financial commitment from the federal government for homeland security and transportation, the Bay Area will need to use local funds to pay for some of the more urgently needed protections.

"DESIGNS FOR NEW TRANSPORTATION FACILITIES MUST ALSO BUILD IN THE LATEST SAFETY FEATURES."

# Calls to Action

### Complete Seismic Retrofit of Key Transportation Facilities

Sixteen years after the 1989 Loma Prieta earthquake, the time has long since passed to make our key transportation facilities earthquake safe. The Bay Area transportation community will need to work with state lawmakers on a plan to pay for the urgently needed strengthening of key facilities.

### New Vehicle Registration Fee for Safety and Security

An additional fee on vehicle registrations could provide critical funding to increase safety for motorists, pedestrians and bicyclists, as well as for security programs. Funding should be linked to annual analyses of collision or other appropriate data.

### Analyze Traffic Collision Data

The Bay Area transportation community must implement a program to ensure thorough analysis of collision data to identify problem locations and the primary factors contributing to accidents, then identify and implement needed low-cost safety improvements.

### Coordinate Security Efforts

Many Bay Area transportation agencies are implementing projects to improve the safety and security of their own systems, and training their employees to watch for, and respond to, terrorist acts. Defining levels and standards for security, and coordinating a quick and effective regional response by affected agencies, must be a regional priority supported by federal funds.

### Increase Federal Homeland Security Funding for Transportation

While the region has benefited from some congressional earmarks for protecting our ports and transit systems from terrorist attacks, far more investment is needed. We urge Congress to increase funding, and — as the 9/11 Commission has recommended — direct a larger portion to urban areas, where the threat level is greatest.

# strategic expansion

## HOT Network Delivers Carpool Lanes and Congestion Insurance

In many Bay Area travel corridors, carpool lanes, also known as high-occupancy-vehicle (HOV) lanes, offer travelers a way to beat peak-period congestion. On some freeways, carpool lane users can regularly shave as much as 15 or 20 minutes off their morning or evening commutes. Similarly, express bus routes use carpool lanes to bypass traffic and provide faster, more reliable service.

HOV lanes also make our freeways more efficient. For example, at the height of the morning commute, nearly two thirds of all people traveling to San Francisco over the Bay Bridge pass through the carpool lanes at the toll plaza, though these lanes carry just 40 percent of all the vehicles during the same period. With a record like this, it is easy to see the appeal of completing the regional HOV lane network and expanding regional express bus service in HOV lanes. Indeed, surveys of Bay Area residents demonstrate broad support for expanding and closing gaps in the HOV system to support a more robust network of express buses.

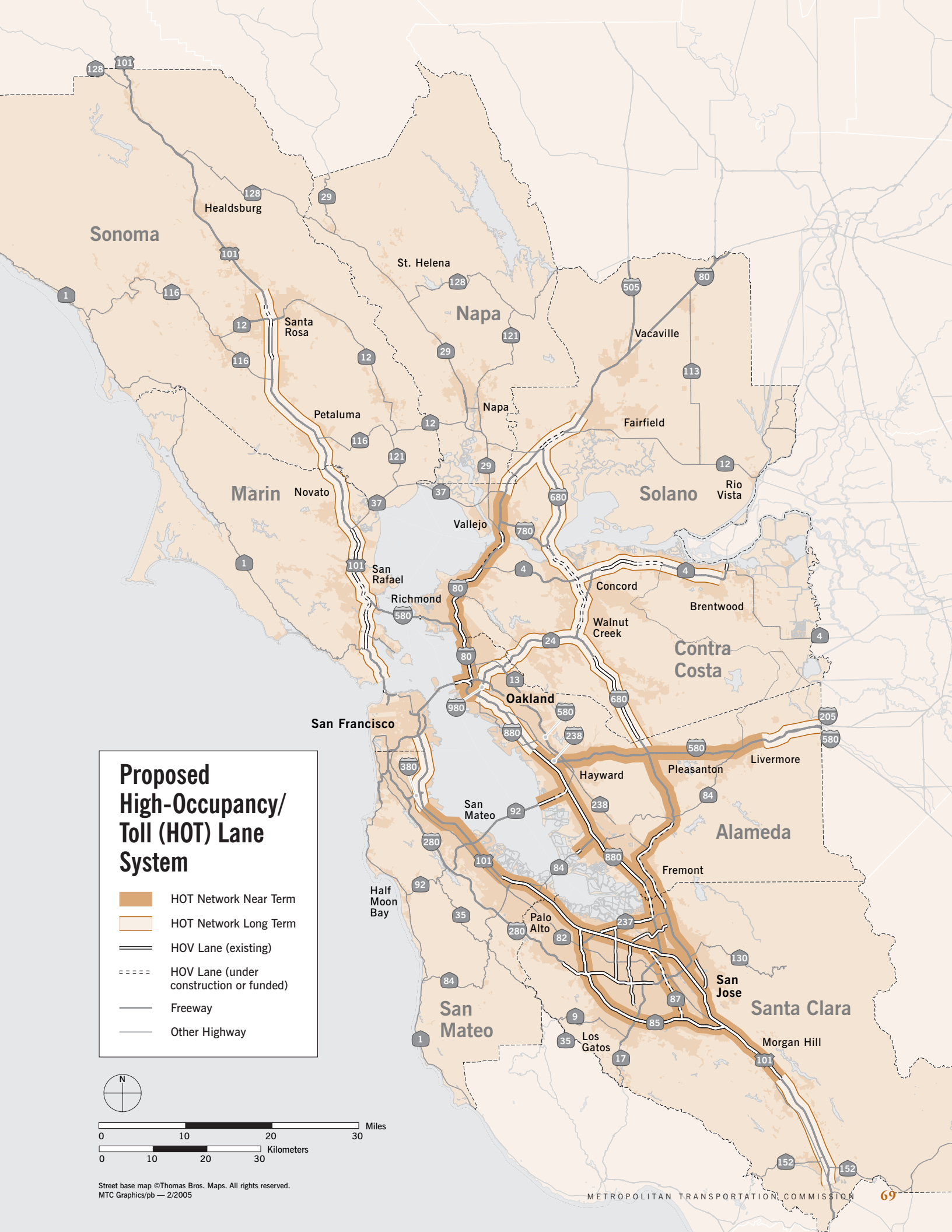
If we rely on traditional funding sources, it will take two decades or more to complete the HOV system, and even longer to build HOV connectors at major interchanges such as I-880 and State Route 237 in Santa Clara County. Further, because there is barely enough traditional funding to operate the existing transit system, we would be hard pressed to finance expanded express bus service in HOV lane corridors.

To speed completion of the HOV network and expand regional express bus service, the Bay Area should consider financing the construction and operating costs by allowing people who drive alone to use specially designated carpool lanes for a fee. These so-called high-occupancy/toll (HOT) lanes would have the additional benefit of injecting a pricing element into highway use by giving solo drivers the option of paying for the opportunity to bypass congestion by traveling in HOV lanes. Carpools and buses would still travel free of charge. HOT lanes not only allow us to complete the carpool network, they offer "congestion insurance," with premiums paid only by drivers who use them.

In the Bay Area, existing HOV lanes would be converted to HOT lanes. Toll revenues could then be used to complete the HOV system, build HOV lane connectors at major interchanges, and expand express bus and rideshare services. HOT lane tolls would be paid using the FasTrak™ technology, already familiar to those who traverse Bay Area toll bridges. With FasTrak™ readers installed on overhead structures, HOT lane tolls can be collected without forcing drivers to stop or even slow down. The toll paid by solo drivers would be set to balance supply and demand and keep the HOT lanes flowing freely. During the most congested commute periods, when carpool and bus traffic is heavy, the toll would be high so that only a small number of solo drivers — who most need "congestion insurance" — buy in. This keeps the HOT lane from becoming congested and maintains the travel time advantage. In periods of lighter traffic, a much lower toll would be charged to encourage solo drivers to use the HOT lane for a more modest time advantage.

In California, the pricing of HOV lanes already is being practiced on some freeways in Orange and San Diego counties — giving motorists the choice of traveling in buses, carpools or vanpools; paying a variable toll to drive in an HOV lane; or driving free of charge on existing mixed-use lanes.


SAN DIEGO ASSOCIATION OF GOVERNMENTS

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MTC Graphics/pb — 2/2005

## Transportation 2030 Challenges

- Express buses depend on HOV lanes to zip passengers around the Bay Area. Filling existing gaps in the region's HOV system would create a seamless network of unobstructed lanes, deliver faster commutes and improve overall efficiency. This may also work to encourage more people to take transit. But financing new carpool lanes is a challenge. HOT lane tolls would generate new funds to speed completion of the HOV system, buy and operate new transit vehicles, and influence demand for scarce roadway capacity.

- Though the concept of converting HOV lanes to HOT lanes has gained some support, there are concerns that HOT lanes would benefit only the affluent. A California Polytechnic University (San Luis Obispo) study of Orange County's State Route 91 toll lanes found that only about one-quarter of the motorists in toll lanes at a given time are higher-income motorists. The majority are low- and moderate-income motorists. Further, toll revenues can be used to fund express bus and other rideshare services that would be used by travelers of all income levels. HOT lanes give all travelers, regardless of income, the freedom of choice.

- Implementation of a HOT network in the Bay Area could take place over the next five to 10 years. MTC will need federal and state legislative permission — and cooperation from Caltrans and the CHP — to implement a comprehensive HOT network. Legislation was recently enacted to allow a limited number of HOT lanes to be implemented in Alameda and Santa Clara counties.

- HOT lanes will lead to an increase in traffic volumes in these lanes. To maintain premium service levels that expedite buses, encourage carpooling and attract toll-paying drivers, the threshold for carpool designation in some corridors may have to rise to three persons per vehicle.

- Implementation of a HOT network would mark a turn away from traditional highway expansion financing, by relying on user fees generated directly by the HOT lanes themselves rather than gasoline taxes or sales taxes to build more HOV lanes.

- It is challenging to explain the HOT lanes concept to the Bay Area public, which is largely unfamiliar with how pricing schemes on HOV lanes are already working in other parts of the state. More effort, and perhaps a more descriptive name, is needed to familiarize the public with this new notion. Other regions have struggled with the same challenge: the term "managed lanes" is used in San Diego and Texas; "express lanes" is used in Orange County; and an Alameda County pilot project uses the term "Smart Carpool Lanes."

## Calls to Action

### Try Before We Buy

We'll never know if HOT lanes can be an effective solution to congestion unless we give them a try. A pilot HOT lane program in Alameda and Santa Clara counties must get under way as quickly as feasible. While these pilot projects are under development, MTC will conduct regional studies to provide additional information on a range of issues, including: public acceptance in the Bay Area; impacts on low-income travelers; and effects on incentives for carpooling as well as on carpool-lane operations. MTC will work with interested partners to inform the public about how HOT lanes work, based on experience in other parts of the state and country.

### Put Legislation in the Fast Lane

MTC is seeking permission from Congress and the state Legislature to implement tolls on the state highway system. House and Senate reauthorization bills to permit greater experimentation with tolls on the Interstate system indicate the federal government is supportive of tolling. Bay Area transportation agencies must work collectively to build support for HOT lanes and other innovative pricing programs as reauthorization of federal surface transportation legislation unfolds.

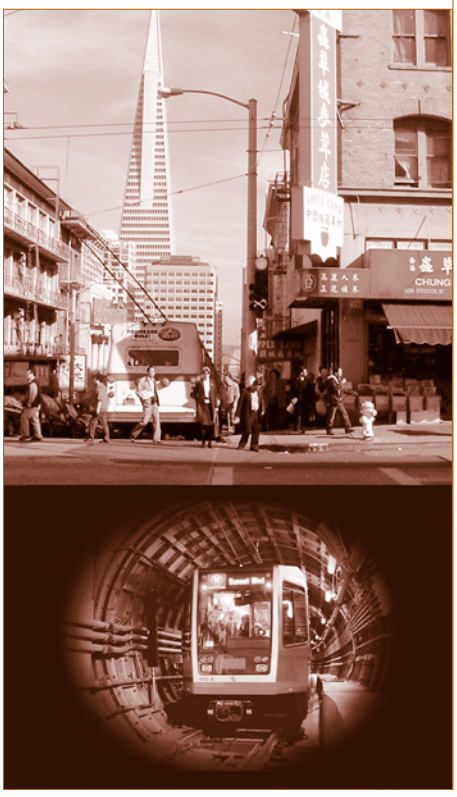
### Get a Little Help From Our Friends

Implementation of a HOT network will require extensive cooperation with Caltrans (which may need to adopt more flexible rules for roadway design and operations) and the CHP (which will have to rigorously enforce HOT lane eligibility laws to keep the lanes free-flowing).

JOHN HUSEBY, CALTRANS

## MTC Resolution 3434: The Bay Area's Vision For Transit Expansion

MTC's Regional Transit Expansion Program, adopted in 2001 as Resolution 3434, identifies nine new rail extensions, significant service expansions to existing rail lines and a comprehensive regional express bus program, new ferry service, plus eight enhancement programs to existing rail and bus corridors. (See corresponding maps on pages 73 and 75.) When fully implemented, this next generation of transit expansion projects will forge key transit network connections between southern Alameda County and the Silicon Valley, provide a new southern transbay link, enhance the Bay Area's central transit hub in San Francisco, and extend the reach of rail to the North Bay and the outer East Bay.



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## Transportation 2030 Challenges

### Financing

Central to the Transportation 2030 Plan update is a review of the financial assumptions that went into developing the Regional Transit Expansion Program. This review will focus not only on capital investments, but also on identifying a stable revenue stream to operate and maintain the new services.

### Smart Growth

A key element of MTC's Transportation/Land-Use Platform, incorporated into the Transportation 2030 Plan, is the directive to condition MTC Resolution 3434 funds on projects that promote transit-oriented development. A task force is assisting in developing recommendations on how best to leverage transit expansion investments.

### High-Speed Rail

A statewide high-speed rail service currently is being planned. This new state investment could benefit local commuters as well, especially in upgrading the Caltrain system on the San Francisco peninsula, which will share right-of-way with the high-speed trains.

## Calls to Action

### Condition Transit Expansion Upon Appropriate Land Uses

Transit should be expanded only in those areas where there are existing or planned land uses with development densities to support the transit service.

### Seek Robust Federal Earmarks

Continue the region's aggressive strategy to capture significant federal rail, bus and ferryboat discretionary revenues.

### Support Retention of Traffic Congestion Relief Program Earmarks

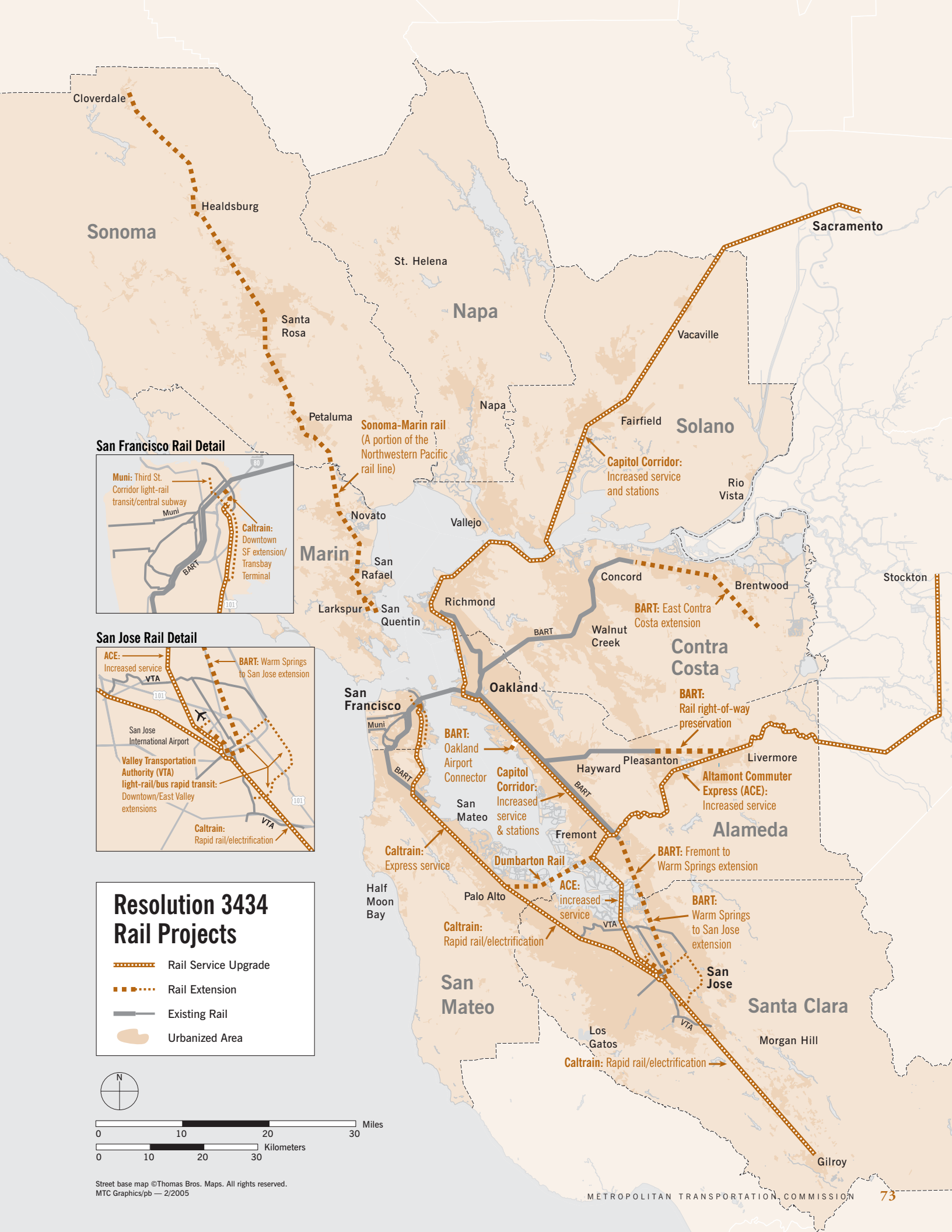
Proposition 42, which passed with 69 percent of the vote in March 2002, permanently dedicated gasoline sales tax revenues to transportation. It is expected to generate over $1 billion each year for transportation, including $678 million annually for the statewide Traffic Congestion Relief Program (TCRP), which provides a total of $850 million for Resolution 3434 transit expansion projects. California's continuing budget troubles, however, have led to repeated diversions of TCRP funding.

### Support Passage of County Sales Taxes

Local transportation sales taxes are an increasingly important source of transit funding in the Bay Area, and have been a critical source of local funding for Resolution 3434 projects. These funds can be used as a match to qualify for state and federal funds.

### Support the California High-Speed Rail Initiative

California voters' approval of a proposed bond measure — slated for the ballot in 2006 or 2008 — for a high-speed rail system linking the Bay Area and southern California also could provide crucial funding for Resolution 3434 projects, including Caltrain electrification and extension into a new Transbay Terminal in downtown San Francisco.

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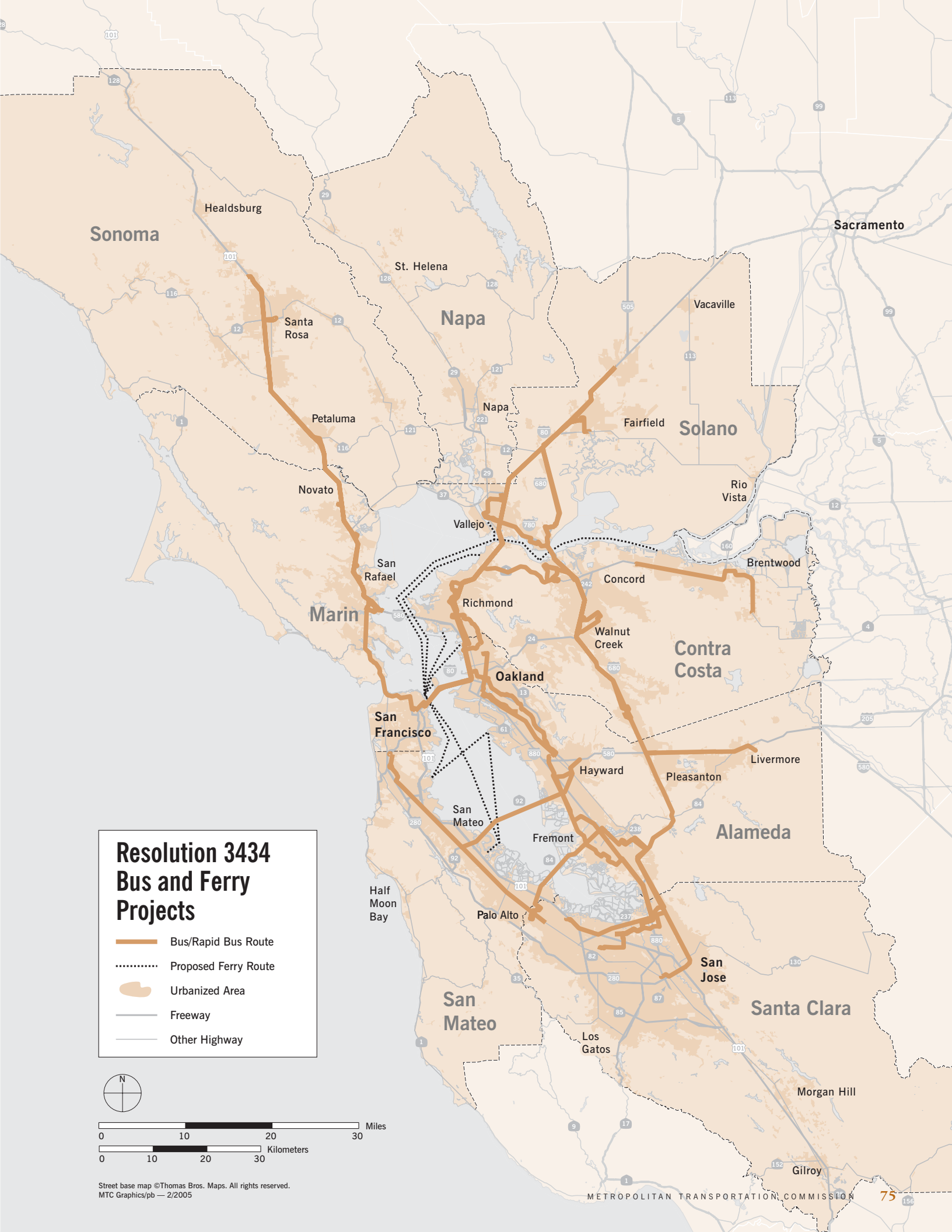



TOM TRACY

## Moving Goods to Market

Goods movement is critical to the Bay Area's economy. Bay Area businesses and residents could not function without a robust goods-movement system. Measured in terms of tonnage, nearly half of all goods moved into, out of, or within the Bay Area have both an origin and a destination within the region. Commodities such as food, construction materials and merchandise for retail stores account for most of the freight that travels in the region.

Over 37 percent of Bay Area economic output is in manufacturing, freight transportation, and warehouse and distribution businesses. Collectively, these businesses spend approximately $6.6 billion annually on transportation services. The businesses providing these services also play a critical role as generators of jobs and economic activity in their own right. Bay Area goods-movement businesses provided almost 6 percent of the region's jobs in 1997. Since these estimates do not include employment in warehouses, it is likely that goods-movement businesses provide almost twice as much employment as indicated in these figures. Some of these jobs are entry-level jobs, which have been declining in other sectors of the manufacturing economy.

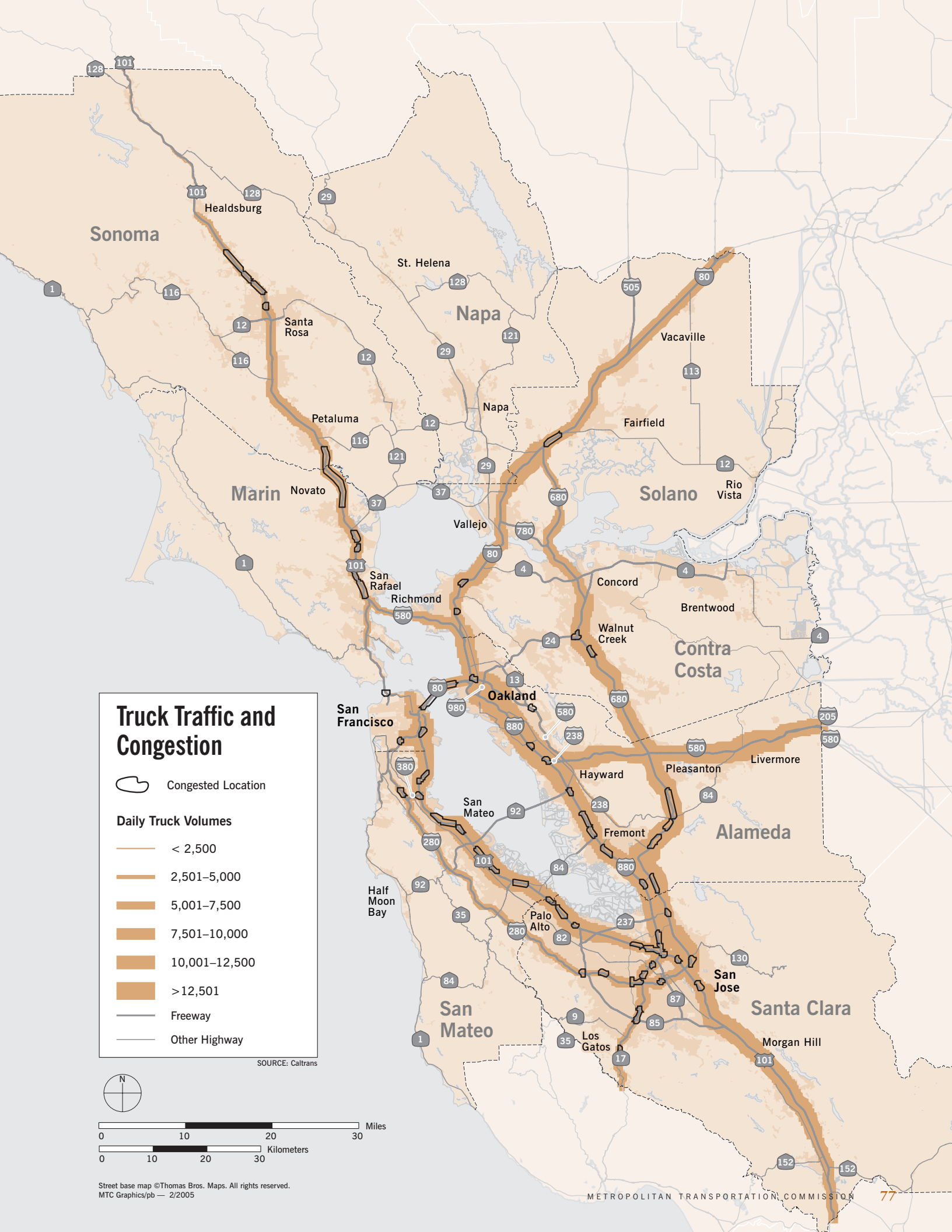
## Transportation 2030 Challenges

### Highways

More than 80 percent of the goods movement in the Bay Area involves trucking in several major corridors — Interstate 880, U.S. 101, I-580 and I-80. In these corridors, which rank among the most congested in the Bay Area, trucks compete for scarce freeway capacity.

### Rail

After trucking, rail carries the next-largest share of Bay Area freight. For the most part, the system in the Bay Area is functioning effectively for the primary markets it serves. There are, however, a number of locations throughout the East Bay where at-grade rail crossings pose problems for both the rail network (slowing rail traffic and creating bottlenecks) and for truck and auto traffic. Another problem is the growing competition between freight rail needs and passenger rail needs in the Capitol Corridor linking Sacramento and the Bay Area.



# strategic expansion


FEDEX CORP.

## Air Cargo

Air cargo is the fastest-growing segment of the Bay Area goods-movement system. Air cargo volume is forecast to triple between 1998 and 2020, with a whopping 125 percent increase in all-cargo flights. Peak-period congestion on freeways leading to the airports is becoming more of an issue for expedited delivery shipments needing access to the airport. Lastly, landside capacity for support facilities is a growing problem. The lack of availability of air cargo storage and sort facilities constrains future growth in international cargo shipments from San Francisco International Airport.

> "AIR CARGO IS THE FASTEST-GROWING SEGMENT OF THE BAY AREA GOODS MOVEMENT SYSTEM."

## Maritime

Peak-period congestion problems are becoming an important access issue for the Port of Oakland. As warehouse and freight facilities move to outlying areas, trucks must be on the road longer to access the port.

## Land Use

One of the biggest constraints on goods movement is the lack of suitable land for supporting businesses, especially in the bayside communities of the region's urban core.

## Calls to Action

### I-880 Corridor Improvements

- Improve incident management, and fund centrally controlled ramp metering and traveler information systems.
- Reduce operational difficulties facing trucks through interchange improvements, auxiliary lane improvements, truck lane continuity improvements, and spot-capacity increases to improve safety and traffic flow conditions along freeway segments with high truck volumes.
- Provide viable alternatives to the freeway for trucks serving the major industrial corridor along I-880, such as parallel arterials and rail or inland barge options.

### Consider Options for Expanding Capacity in the I-580 Corridor

Potential options to explore include truck climbing lanes over the Altamont Pass, an inland rail or barge shuttle system, or a truck-only toll facility.

### Maritime Projects

Improve access to the Port of Oakland through a series of investments on arterial access routes and I-880 interchanges and the integration of public and private freight-tracking information systems.

### Air Cargo Projects

Develop a land-use/industrial land preservation plan for the region's major commercial airports in San Francisco, Oakland and San Jose. Improve cross-Bay connections among the airports and between shippers concentrated in the South Bay/East Bay and the international and domestic air cargo facilities.

### Land Use

The Bay Area transportation community must develop regional strategies and incentives to encourage local communities to preserve land for freight-related uses.